

HANDBOOK

OF THE

*Austin*

"SEVEN"



PUBLICATION No. 1725

PRICE ONE SHILLING.

---

THE  
AUSTIN MOTOR CO. LTD.  
LONGBRIDGE :: BIRMINGHAM

HANDBOOK  
OF THE  
*Austin*  
"SEVEN"

PRICE - ONE SHILLING

THE AUSTIN MOTOR CO. LTD.

G.P.O. BOX 41  
LONGBRIDGE - BIRMINGHAM

Telephones : - - - - - PRIORY 2101  
Telegrams : "SPEEDILY, TELEX, NORTHFIELD"  
Cables : "SPEEDILY, BIRMINGHAM, ENGLAND" Code : BENTLEY'S

LONDON SHOWROOMS :

479 - 483, Oxford Street, W.1.

Telephone : - - - - - "Telegrams :  
MAYFAIR 7620 "AUSTINETTE, TELEX, LONDON"

AND

HOLLAND PARK HALL

HOLLAND PARK AVENUE, W.11

Telephone : PARK 8001

Repair and Service Depot for "Seven" and "Ten" Cars :—

25, NORTH ROW, LONDON, W.1.

Telephone : MAYFAIR 6271

In reference to this Book  
please quote the number **1725**

September, 1938

PRINTED IN ENGLAND

## A FOREWORD

THE information contained in this Handbook is intended only to guide and assist the owner or driver of an Austin car to preserve the car in its proper satisfactory running condition. The publication must not be considered as a complete manual.

The handbook does not in any manner vary or extend the liability of the Company, which is limited to the Warranty issued with the car. Where no information is given for a particular adjustment it may be regarded as one which the average owner would entrust to a garage. When the occasion for adjustments of this character arises the owner should seek the aid of the local Austin dealer.

Both owner and dealer are encouraged to call upon the Service Department of the Company for advice, whether upon the management of the car, the effecting of adjustment, or methods of repair. Owners need not suppose that they will have to apply all the attentions given in this book, but careful notice should be taken of the chapters dealing with maintenance.

## CAUTION.

*Parts of genuine Austin manufacture only should be used when a replacement is made, to ensure that the service given by the original shall be maintained by the replacement. Imitations cannot be relied upon to do this.*

*If imitations are used, the Company's guarantee is infringed and becomes null and void.*

*Always get your replacements from authorised Austin Dealers, as they stock only genuine Austin Spare Parts.*

*Should repairs be executed by other than an authorised Austin Dealer, for safety's sake always obtain a guarantee that genuine Austin Spare Parts are used.*

*See the statement at the end of this book with reference to Accessories.*

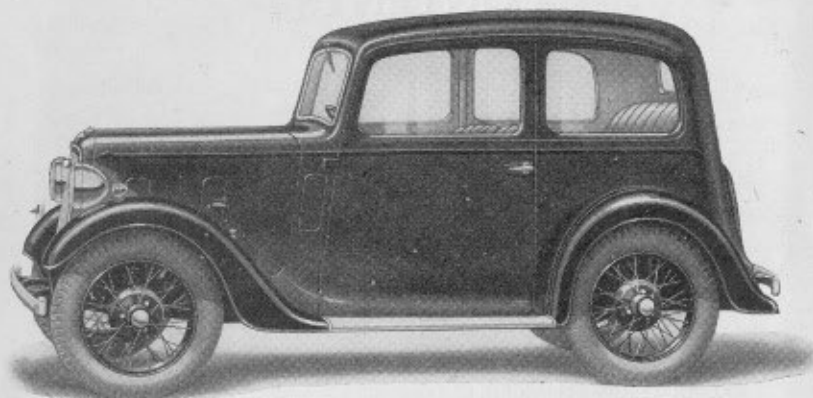
*In correspondence always quote your car number; body number will be found on the scuttle under the bonnet on the nearside, chassis number on chassis under the bonnet on offside.*

## AFTER SALES SERVICE

Every Austin Dealer is under agreement to give to Austin Cars purchased from him "After Sales Service" during the period of the first 1,000 miles running of such cars. (See page 70).

## CONTENTS

	PAGE
AMMETER READINGS .. .. .	10, 46
ATTENTIONS, Daily, Weekly, Monthly, Occasionally ..	14
BATTERY, The .. .. .	47
BODYWORK, Care of .. .. .	66
BRAKES, Adjusting, Relining, etc. .. .. .	54
BRAKE GEAR, Lubrication of .. .. .	41
CABRIOLET .. .. .	67
CARBURETTER, Adjustment, etc. .. .. .	22
CHASSIS LUBRICATION CHART .. .. .	36 and 37
CLUTCH, Lubrication of Mechanism .. .. .	39
CLUTCH, Taking up wear .. .. .	65
COMBUSTION CHAMBER, Cleaning .. .. .	58
CONTROL OF THE CAR .. .. .	12
COOLING SYSTEM .. .. .	26
DYNAMO, The .. .. .	44
DOOR KEYS .. .. .	69
ELECTRICAL EQUIPMENT, The .. .. .	44
ENGINE, Lubrication of .. .. .	36 and 37
Starting the .. .. .	7
FAN .. .. .	61
FUEL SYSTEM .. .. .	20, 22
FUSE, Action of the .. .. .	44, 51
GEARBOX, Lubrication of .. .. .	39
GREASE GUN, How to use the .. .. .	43
HOOD (Care of) .. .. .	66
HUBS (Front and Rear) Lubrication of .. .. .	41
IGNITION, Timing .. .. .	31
System, The .. .. .	28
INFLATING SEAT INTERIORS .. .. .	68
LAMPS, Care of .. .. .	51
LUBRICANTS, Choice of .. .. .	34
LUBRICATION CHART .. .. .	36 and 37
PETROL PUMP .. .. .	20
REAR AXLE, Lubrication of .. .. .	40
ROAD SPRINGS .. .. .	41
RUNNING ADJUSTMENTS .. .. .	58
SHOCK ABSORBERS .. .. .	64
SPEEDOMETER DRIVE .. .. .	42
STEERING, Adjustment of .. .. .	62
STEERING GEAR, Lubrication of .. .. .	40
THE NEW CAR .. .. .	7
TOOLS .. .. .	70
TYRES, The .. .. .	16
VALVE TAPPETS, Adjustment of .. .. .	58
WHEEL, Changing a .. .. .	16
WIRING, Diagram .. .. .	53



The Austin Seven de luxe Saloon.

## THE AUSTIN SEVEN

**T**HE Austin Seven is acknowledged to be the best small car in the world.

It is designed for, and will carry in comfort, four adults up to a weight of 40 stones and 56 lbs. of luggage.

There are five models made, the Cabriolet, the de luxe Saloon, the Saloon with fixed head, the Tourer and the Two-Seater. The closed models are alike in general lines and general equipment. Particularly good features are the wide doors and the four side windows which are mechanically raised or lowered.

The large single panel windscreen, which can be opened wide and secured by an ingenious lever fastening easily reached from the driver's seat, is another advantage. The Tourer, with its easily operated hood, and side curtains which open with the doors, provides complete protection in even the most inclement weather.

Both front seats are separately adjustable. They tilt forward and allow ready access to the rear seats or luggage space.

The Austin Seven has a 4-cylinder, water-cooled engine, synchromesh gears, and bevel drive. Lubrication is by pump, and cooling is on the thermo-syphon system assisted by fan.

The complete equipment includes electric starting and lighting switches, foot operated "dip and switch" for headlamps, air strangler, electric horn, speedometer, electric windscreen wiper, automatic return direction indicators, licence holder, shock absorbers, spare wheel and

tyre and blank number plates. All fittings are chromium plated, except the wheel centres, which are of stainless steel.

The Austin Seven is particularly suitable for the woman driver. It requires little physical effort to drive and control, and for that reason its use enables her to do shopping calls without fatigue, visit her friends, attend social and other functions, or make excursions or trips in any direction in any weather.

For the same reasons business men find it an excellent vehicle, and commercial travellers and others whose occupation compels frequent calls over an extended area have in the little car an embodiment of all they require. Calls can be made in places where trains, trams and buses are infrequent.

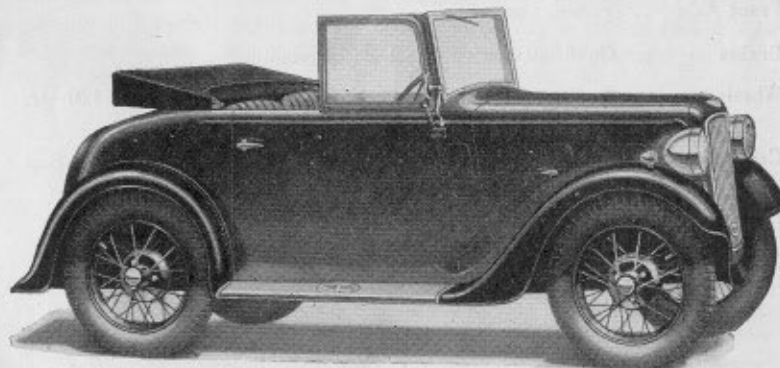
In large establishments, where the instant use of a car is of vital importance in cases of emergency, such as sudden illness or accident, the Seven has been installed as a "tender," and in addition to its superiority over large unwieldy cars for short runs, has proved a real time and money saver.

As 40-42 miles per gallon is the average petrol consumption, the cost of transit is below the cost of fares on any public conveyance.

Its speed, economy, reliability and road-holding qualities have been admitted beyond dispute.

Many thousands of motorists have had their first experiences on a "Seven"; thousands more will follow them.

Having successfully passed through fifteen years of severe use and trial, it has emerged a really successful and popular favourite and its splendid qualities are internationally recognized.



The Austin Seven Two-Seater



# CHASSIS SPECIFICATIONS

- Dimensions** .. The dimensions of the models vary. Maximum length 10ft. 7in. (3,260 mm.) Width 4ft. 3in. (1,295 mm.); Height 5ft. 3in. (1,600 mm.); Wheelbase, 6ft. 9in. (2,057 mm.); Track, front, 3ft. 4in. (1,016 mm.) rear, 3ft. 7in. (1,092 mm.). Ground clearance, 6½in., 6¾in. and 7½in., according to model.
- Engine** .. Four-cylinders, water-cooled, with detachable head. Bore, 2.2in. (56 mm.); Stroke, 3in. (76 mm.); Cubic capacity, 747.5 cc., R.A.C. rating, 7.8. Brake horse-power: 17 at 3,800 r.p.m. Ignition: Coil. Oil circulation: by pump. Sump capacity 4 pints. Cooling: Thermo-syphon with film radiator and fan. Cooling system capacity 10 pints. There is a spring loaded valve in top tank to prevent overflow by splash. Crankshaft bearings: Front, ball; Centre, plain; Rear, roller.
- Fuel Feed** .. 5 gallon (22.75 litres) tank at rear. Fuel supply by A.C. pump.
- Starter** .. Electrical.
- Clutch** .. Flexible single-plate, spring loaded, the plate carrying the friction rings.
- Gearbox** .. Four speeds forward, and a reverse; The top, third and second gears have synchromesh engagement, which ensures smooth, noiseless, certain gear changes to suit varying speeds. First gear is a low one to be used in starting with a full load, up an incline, or manoeuvring the car in an awkward place. The ratios of engine to road wheels are: top, 5.125 to 1; third, 8.51 to 1; second, 13.53 to 1, and first, 22.4 to 1 reverse, 28.8 to 1. Ball bearings throughout. Oil capacity 1½ pints.
- Rear Axle** .. ½-floating, with differential and torque tube. Ball bearings and thrusts throughout. Final drive by shaft and spiral bevel. Oil capacity ¾ pint.
- Springs** .. ½-elliptic transverse spring in front. Quarter elliptics at rear. Shock absorbers are fitted to front and rear.
- Front Axle** .. Forged, I section.
- Brakes** .. On all four wheels with individual adjustment.
- Wheels** .. Special wire detachable. One spare wheel with tyre. Tyres 4.00—17, and 4.75—16 (E.L.P.) Dunlop. Vans, 4.00—18.
- Controls** .. Ball change speed gear lever, and brake lever, mounted centrally. Foot control for dip and switch headlights. Foot accelerator.
- Lighting** .. By gear-driven dynamo, with 6-volt battery.
- Bodywork** .. Two bucket seats for driver and passenger, both being hinged to allow easy entrance to the rear seat. Rear seat to carry two adults or three children. Ample tool accommodation. Spare wheel and tyre. On touring model, hood, single piece screen and full side screens (those over the doors open with them). Electric horn, speedometer, direction indicators, electric windscreen wiper, driving mirror and licence holder.
- Luggage** .. The maximum permissible load for the luggage carrier is 56 lbs.

# THE NEW CAR.

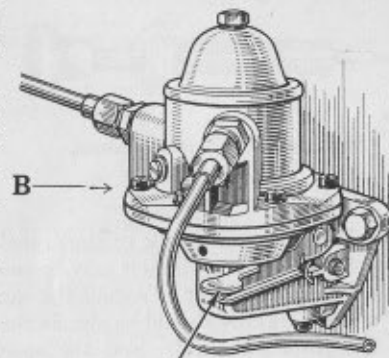
It will Repay You to Read these Notes Carefully.

**I**F you are not familiar with Austin cars please read this Handbook carefully.

Give the new car a general examination to see that all is in order.

Before running, see the car is supplied with fuel and water, that the engine and gearbox have the necessary quantities of oil and that the battery contains the proper amount of acid.

Cars delivered by road are ready for running. There is no oil, fuel or water in cars crated for overseas and the batteries are empty and uncharged.



A. Petrol Pump Priming Lever.  
B. Drain Plug.

## Starting the Engine.

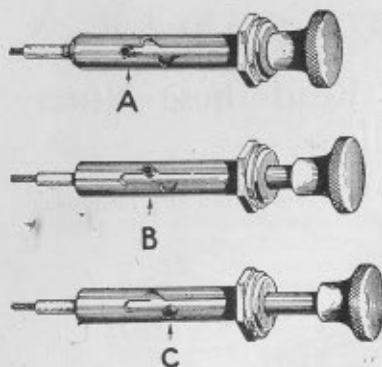
Before attempting to start the engine, make sure that the change speed lever is in neutral position and the hand brake on.

If the car has been standing for some time, starting should be assisted by using the hand priming lever on the petrol pump to give the carburetter a full supply of petrol.

Give the engine a few turns with the starting handle to make sure that the crankshaft is free (pushing the handle in to engage fully with the starting nut, before turning it). The ignition key is turned to the right to switch on the ignition and the charging and lighting switch is turned to "High" or "Low" Charge.



Pull the combined strangler and throttle control knob on the instrument board to close the carburetter air inlet, and pull out the switch to operate the starter. **Be sure to release the strangler wire after the engine has started.** Do not allow the engine to race when first starting up, as time must be allowed for the oil to circulate and lubricate various bearings.



**Strangler and Throttle Control.**

A—Normal Position. B—Fast Idling.  
C—Warming Up.

If the engine fails to start quickly and it is thought that the mixture getting into the cylinders may be too rich, the accelerator pedal should be depressed half-way to reduce the suction. On firing, the engine will race, and the throttle should be almost closed. If the engine does not fire, close the throttle entirely, and try again.

After a stop in hot weather, failure of the engine to start is more likely to be due to a too rich mixture than one too lean, and one should switch off only after quite closing the throttle. Re-start the engine with the throttle closed.

Depress the clutch pedal before switching on. This will lessen the starting load and help the starter to turn the engine at higher speed, as well as save drain on the batteries.

If after the foregoing measures have been carried out the engine fails to start, the reason will probably be faulty ignition or carburation.

If faulty ignition is suspected, first examine the wires and see that the sparking plugs are connected. Then test the gap of the plug points by means of the thick end of the gauge provided in the tool kit. If the points are dirty, clean them.

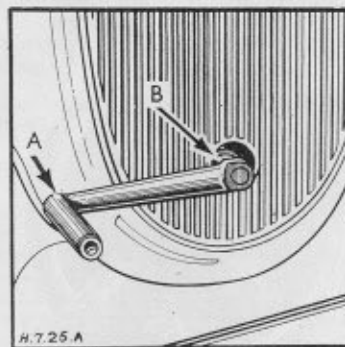
If carburation gives trouble, the slow running jet may be stopped up or a main jet choked. Blow them out orally or with a tyre pump. Never attempt to clean them by passing a wire or other small metal object through them. This will definitely injure the jets.

The engine should never be allowed to run at high speeds during its first 500 miles.

Never leave the ignition switch on for any lengthy period while the engine is not running. The warning lamp on the switch board will remind you of this.

### Difficulty in Starting.

Difficulty in starting may be caused either through sucking too much petrol into the cylinders, or too little. When starting with the throttle all but closed, a strong suction takes effect on the slow running jet. If petrol is passing through the carburettor the suction can generally be heard.



**"Seven" Starting Handle Position.**

Oil occasionally at A and B.

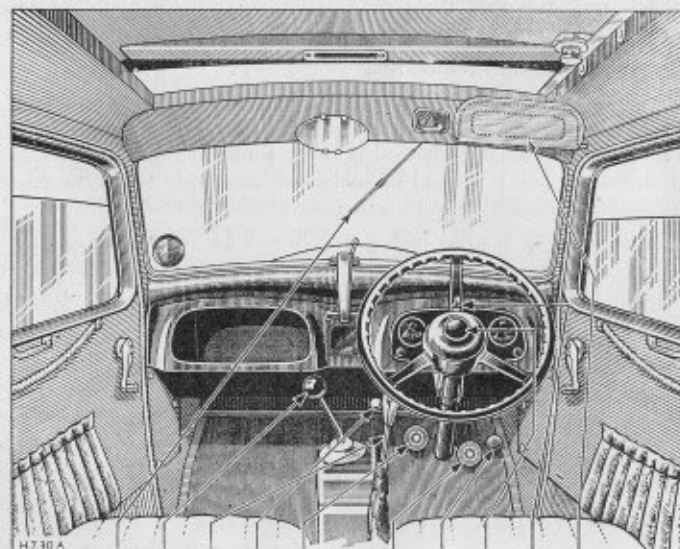
Maximum desirable road speeds during the first 500 miles are:—  
First gear, 7 m.p.h.; second gear, 11 m.p.h.; third gear, 18 m.p.h. and top gear, 30 m.p.h.

### The Starting Handle (Fixed type).

When the engine is running, see that the starting handle is not hanging down. It should be replaced in a horizontal position at "9 o'clock." (See page 8).

There is a catch which will secure it in its proper place there on the off-side of the car.

The starting handle should be oiled occasionally.



1 2 3 4 5 6 7 8 9 10

**Austin "Seven" Controls.**

- |                            |                               |
|----------------------------|-------------------------------|
| 1. Windscreen Wiper.       | 6. Brake Pedal.               |
| 2. Change Speed Lever      | 7. Accelerator Pedal.         |
| 3. Handbrake Lever.        | 8. Horn Button.               |
| 4. Dip and Switch Control. | 9. Direction Indicator Switch |
| 5. Clutch Pedal.           | 10. Visor                     |

Instruments are Illustrated on Page 11.

# THE INSTRUMENTS

## Fuel and Oil Gauges, Speedometer, Windscreen Wiper.

A FULL range of instruments is provided on all Austin Cars. They are of the highest quality and the following notes explain their uses.

### Fuel Gauge.

The fuel gauge is electrically operated and automatically indicates the approximate contents of the tank when the ignition control is switched on.

When the tank is being refilled, switch off and stop the engine and then switch on again and the needle will record the amount of spirit entering the tank. The capacity is five gallons.

The gauge requires no attention.

### Oil Gauge.

The oil gauge indicates that oil is being pumped through the engine lubrication system and it should be looked at frequently when the engine is running to ascertain that sufficient pressure is registered.

When the engine is cold high pressure will be recorded, but this is likely to drop as the oil becomes warmer. If no pressure is registered the engine should be stopped and the cause of the fault ascertained, otherwise serious damage may be caused.

Flickering of the needle may indicate serious shortage of oil or a damaged pipe line.

The gauge may indicate a pressure of 10 lbs. or more when the engine is cold or from 2 to 10 lbs. when hot. With the engine running at constant speed the needle should be quite steady.

### Windscreen Wiper.

The windscreen wiper is started by pulling out the handle and swinging it aside to bring the wiper blade into position on the screen. Then move the switch to the left.

On stopping the wiper move the switch to the right and replace the handle in the top of the switch knob so that the blade is held out of the driver's line of vision.

### Ammeter.

The ammeter indicates the rate of discharge of the batteries, but does not indicate current used by the starter motor.

No discharge should be indicated with no electrical equipment in use or with headlamps on when the car is running at about 20 miles an hour (30 kms.), or faster.

### Switch Box.

When the engine is not in use the ignition key should be withdrawn from the switchbox. It can be withdrawn only when the ignition is "off."

The lighting switch also controls the rate at which the dynamo charges the battery. "High Charge" should be used in the Winter and when the car is used very little in the Summer. "Low Charge" is for Summer use when the batteries are not used a lot for lighting, or frequent starting, and the car is used fairly frequently.

### Speedometer.

The figures on the speedometer record up to 100,000 miles or kilometres and they automatically return to zero.

The flexible shaft of the speedometer drive from the gearbox should be lubricated by oiling from the speedometer end every 2,000 miles. To do this uncouple the union nut behind the speedometer.

The shafting should also be taken down and thoroughly cleaned every 6,000 miles. It should be lubricated along its length by applying thin grease so that when the shaft is replaced in its tubing there will be a good supply of lubricant.

Grease should also be smeared round the flange where it rubs the washer of the key piece which connects to the speedometer.

### Traffic Signals.

The traffic indicators are controlled from the steering wheel. Normally, after the car has turned a corner they automatically return, but when a slight turn has been made it may be necessary to switch off.



The Instrument Panel.

### Panel Lights.

The instruments are illuminated by two lamps controlled by the same switch. The holders can be swung aside to facilitate removal of the bulbs, which in emergency can be fitted to the side or combined stop and tail lamp.

- |                     |                    |
|---------------------|--------------------|
| A—Strangler.        | F—Warning Lamp.    |
| B—Oil Gauge.        | G—Ignition Key.    |
| C—Ammeter.          | H—Light Switch.    |
| D—Dash Lamp Switch. | I—Fuel Gauge.      |
| E—Speedometer.      | J—Starter Control. |

### Dip Switch.

The headlamp dipping switch has two functions, one to give the normal driving light and one to dip the near side head-lamp beam and at the same time switch off the offside headlamp.

If the headlights are on full, a touch of the foot on the switch alters the lamps to the "dip-and-switch" position and they remain so until another touch returns them to the "full on" position.

Continental headlamps have dual-filament bulbs and are dipped in the same manner.

### Windscreen.

The windscreen is opened by lifting the handle and pushing it forward.



# CONTROL OF THE CAR

## How to Change Gear; Some Good Driving Hints

**T**HE driving seat of the Austin Seven is adjustable for position and this convenience should be taken advantage of to obtain the greatest comfort.

To engage first gear, push out the clutch and move the gear lever into the first speed position.

Sometimes it may happen that when the clutch is let in, there is no apparent drive from the engine. That is because there has been no proper engagement of the gears. Therefore, push out the clutch again, and it will almost certainly be found that the lever can then be moved so as to give the proper gear engagement without using any force.

Start on first speed, accelerate to about 8 m.p.h., push out the clutch, move the lever to neutral, and continue the movement of the lever steadily to the second speed position and let in the clutch gently.

In moving from second to third speed, a similar action takes place. Accelerate to about 18 m.p.h., declutch, release the accelerator, move the lever to neutral and continue the movement of the lever steadily into the third speed.

To move from third to top, declutch, and move the lever steadily into the position desired. It assists the change from top to third, and third to second if the accelerator is held down while the change is made.

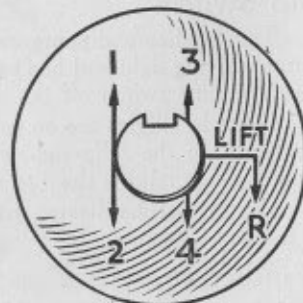
### Change Early.

Always change gear early on a hill. Never allow the engine to labour in any gear and expect it to pick up speed on changing into a lower one when the car has nearly stopped. Do not persist in attempting to drive the car uphill in top gear when the speed falls below 18 m.p.h.—change down.

If the car has been driven back by the reverse gear, wait until it is stationary before engaging a forward speed. Do not engage the reverse gear when the car is travelling forward. Serious damage to the gears will be the result.

Keep the foot off the clutch pedal except in heavy traffic. Even then do not allow the weight of the foot to be taken by the pedal. The slipping of the clutch caused by this practice heats and wears it badly.

When descending a long hill, or before commencing a steep descent, engage one of the lower gears, and do not accelerate.



The Gear Positions.

The engine will then help to retard the speed of the car. When using the brake, keep the clutch in, disengaging it at the last moment if stopping the car.

### Skidding.

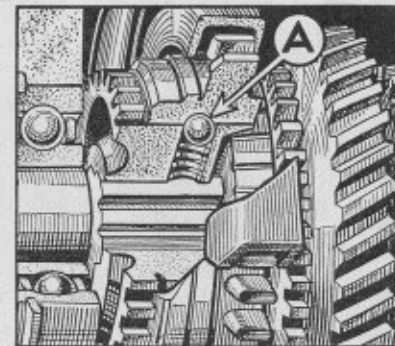
Skidding is sometimes due to sudden braking on a greasy or loose surface and unduly slack tyres contribute to it. If the rear wheels skid, release the brakes and turn the front wheels towards the direction of the skid.

### Synchromesh Gears.

The gearbox has four forward speeds and a reverse and the second third and top gears have synchromesh engagement, which ensures silent positive changes.

Gear changing may be slightly stiff in a new car until the moving parts have eased in use. Changing should not be done hurriedly and no attempt should be made to force the gear lever if engagement is not made at the first attempt. Should difficulty be experienced in engaging a gear when the car is standing, release the clutch for a moment and then try again.

The synchromesh mechanism is governed by a series of spring loaded balls as illustrated. The internal cone on the inner member makes contact with the gear cone to synchronise the speeds of both members before the dog member, overcoming the resistance of the ball A, moves on to give positive gear engagement.



Second Speed Synchronising Mechanism  
A. Spring Ball Resistance.

### What Not to Do.

Whatever you do, please do not make the following mistakes :-

- Do not forget the ignition switch when starting up.
- Do not make a fast run with the radiator muff closed.
- Do not be cruel to the starter if the engine will not fire.
- Do not touch the starter switch while a gear is engaged.
- Do not leave the car in gear and with the handbrake off.
- Do not coast with a gear engaged and the clutch held out.
- Do not fill the radiator with cold water when the engine is hot.
- Do not leave the ignition switched on when the car is not running.
- On no account run the engine in a closed garage. The exhaust gasses are highly toxic and a very small amount in a restricted atmosphere will produce grave, if not fatal results.



## REGULAR ATTENTIONS

ON this and the opposite page is a handy summary of all the attentions described in this handbook. The attentions under the daily, weekly, and monthly headings are based on the assumption that the maximum mileage per week does not exceed 500.

Under more strenuous conditions, for instance, very dusty or very muddy roads, long distances at high speeds or with heavy loads, it will be advisable to attend to the lubrication of chassis parts more frequently.

After the first few days' use tighten all nuts particularly those on the engine cylinder head. These may loosen a little because of the heat generated, but if they receive this attention both they and the head will remain secure against water leaks or loss of compression.

**Warning.**—After the car has been washed, or driven through water, the brake linings may be wet. Apply the brakes a number of times for some distance in order to dry them. Wet brakes are dangerous.

### Daily Attentions.

1. Examine water level in radiator and fill up to within one inch of the top.
2. Examine oil level in the crankcase and add more oil if necessary. The dip rod indicates the level of the oil.

Change the oil first at 500 miles, then every 2,000 to 3,000 miles (3,200 to 4,800 km), when the oil reservoir gauze should be cleaned. The sump capacity is half a gallon.

3. Fill up the petrol tank if necessary. Care should be exercised not to overfill the tank, which will contain five gallons.

### Weekly Attentions.

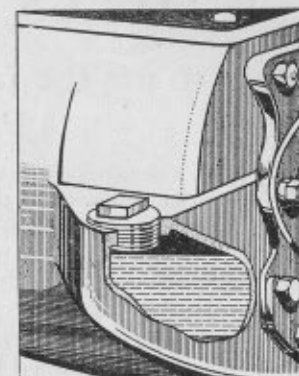
1. With the grease gun charge—  
Front spring shackle pins (4).  
Front wheel swivel pins (2).  
Steering cross tube (2).  
Steering side tube joints (2).  
Rear spring pins (2).
2. Oil the following—  
Clutch release ring.  
Foot brake pedal shaft (below steering box).  
Brake cross shaft bearings (use a brush).
3. Examine both sets of brakes, and adjust if necessary.
4. Test the tyres for correct pressure and examine them for cuts, flints and nails.



Use only recommended Oils.

### Monthly Attentions.

1. Examine the oil level in the gearbox. It should be level with the filler plug. Capacity,  $1\frac{1}{2}$  pints.  
Change at first 1000 and then every 6,000 miles.
2. Charge the back axle case with special lubricant, using the adapter on the grease gun. Capacity  $\frac{3}{4}$  pint.  
Change at first 1000 and then every 6000 miles.
3. Grease all the hubs, as described later.
4. Charge the steering box with special lubricant.
5. Oil handbrake gear, pedal gear and joints, engine control joints, and top of steering column.
6. Examine the battery and see that the connections are tight. (More frequently in hot weather).
7. Give a charge of the special grease to the nipple on the fan spindle.
8. Give a few drops of oil to the distributor spindle bearing.
9. Grease the front end of the torque tube (behind the front seats).
10. Grease the splined end of the propeller shaft (behind the gear box). Turn the shaft to expose the nipple.
11. Grease rear brake balance lever.



The Gearbox Oil Filler.

### Occasional Attentions.

Clean the sparking plugs and check the settings.

Examine all bolts and nuts, such as road spring clips, cylinder head nuts, wheel nuts, these three especially when the car is new.

Examine other parts, such as steering connections, the radius rod anchorage below the gearbox, and the torque tube socket, neglect of which might be followed by an expensive repair and inability to use the car for a lengthy period.

Occasionally clean the pump and carburetter petrol filters and float chamber strainers, and ever 2,000 to 3,000 miles the oil reservoir gauze (when the engine oil is changed). Also ensure that the oil jets in the crankcase are clean.

Flush the radiator with plenty of clean water until it runs through clear. Clean the ignition distributor, and the contact breaker points (adjust the latter), the dynamo and starter commutators. Clean the shock absorbers, adjust the tappets, and the fan belt, decarbonize the engine and grind-in the valves. Check the alignment of the front wheels.

# WHEELS AND TYRES.

## How to use the Jack ; Correct Inflation Pressures

**W**HEN it becomes necessary to change a wheel because of a puncture or for any other cause, the first thing to do is to pull the handbrake "hard on." The spare wheel must be lifted from the rear of the car. Before it is used test the air pressure and if it is not up to the correct figure, use the pump to rectify it. The proper pressures are tabulated on the next page.

It is important to have the car on level ground. With the wheel brace the three nuts of the wheel to be removed should be slightly slackened, but only enough for them to unscrew freely later. The wheel is then jacked up.

If it is a rear wheel, the jack should be put in from the side, between the mudwing and the forward edge of the tyre, and should be placed under the rear spring between the two clips which embrace the spring leaves.

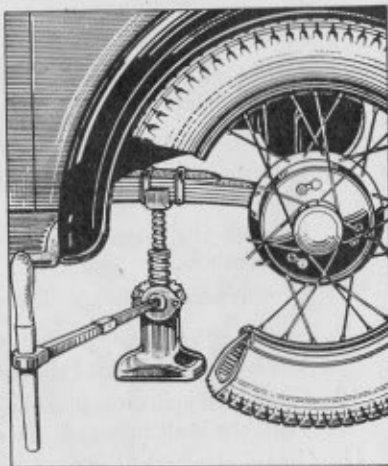
If a front wheel is to be attended to, first slacken the nuts by means of the wheelbrace. Place the jack under the front axle near but not under the big nut at the end.

The operating bar (which is stored under the rear seat cushion) fits into the jack by means of a square tube and is secured in that position by a spring loaded ball.

The head of this bar which engages with the jack must be pushed well home so that a spring loaded ball may engage with a slot, which will prevent the head of the bar slipping out while the jack is in use.

The jack should be adjusted as nearly as possible to the required height by turning the head round by hand before using the handle to lift the car.

To detach the wheel from the hub remove the three nuts by



How to use the Jack on the "Seven."

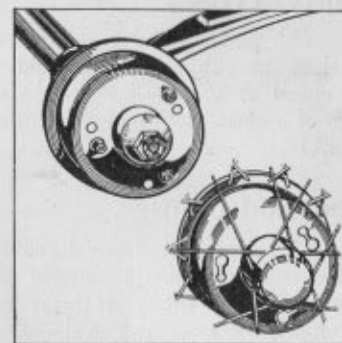


The Jack, showing Extension

means of the brace ; on some models, including vans, it is not necessary to remove them entirely. Pull the wheel outwards about  $\frac{1}{4}$  in. and turn it a little to the left so that the large hole will pass over the nut. The wheel can now be pulled off the hub.

When replacing these slotted hubs, make sure that the large holes in the wheel centre are properly fitted over their pegs, and tighten the wheel nuts, each only a few turns at a time, until they are quite tight and secure.

Should difficulty be experienced upon the first occasion of removing the wheel from the hub, the wheel nuts may be screwed right off. Before replacing, wipe the outside of the brake drum and inside of the hub with an oily rag as this will ease removal on future occasions.



Do not detach nuts. The wheel will slide over them.

## Care of The Tyres.

The key to economical and efficient tyre service is to maintain the correct pressures and test your tyres at least weekly. Any loss of air pressure can be made up with very little effort.

A gauge applied to the valve must be used, for it is seldom possible to detect under-inflation from the tyres' appearance.

Minimum pressures to which tyres should be inflated are :—

Tyre Size.	Front Tyres.	Rear Tyres.	
		One or two Passengers.	Fully Laden.
4.00—17 (Standard)	22	22	26
4.75—16 (E.L.P.)	20	18	22
4.00—18 (Van)	22	—	26
4.75—16 (Van)	24	—	26
Lbs. per sq. in.			

A tyre that loses more than three to four lbs. per sq. inch in a week should be regarded as "suspect." First, make sure that a new valve "inside" is not required. If the tube is punctured make sure before refitting that the puncturing object is not still embedded in the cover.

It is important that both front tyres be kept at same pressure. If because of wear or other causes, the steering develops a tendency to wander or show signs of wobble, the front tyre pressure may temporarily be varied.

## Dirty Tyres.

Oil, paraffin and grease are injurious to rubber, and should be removed as soon as possible by the use of a clean cloth and a very little petrol.

## Cuts and Damage.

Damage affecting only the rubber tread and walls may be plugged with a good tread cut filling. If this is done promptly an extension of the injury will be prevented.

Damage of a more serious nature affecting the cotton structure should be entrusted only to an expert tyre repairer or the tyre manufacturer.

It is essential that the tyre be removed immediately the damage is sustained.

## Fitting Hints.

When refitting a tyre attention is called to the following points.

To avoid trapping the tube between the edge of the cover and the rim, always inflate the tube very slightly before placing it in the cover.

During the final inflation see that the edges of the cover are seated evenly round the edge of the rim. Check this by the moulded line on the cover, which should be about a quarter of an inch from the rim all the way round.

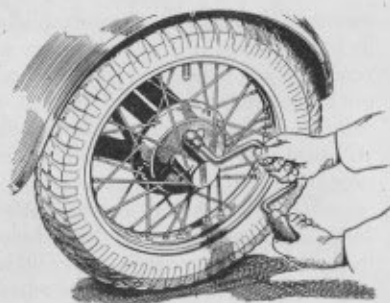
Covers are marked with a red spot near the wire edge. This indicates the lightest part, which should be fitted immediately over the valve.

## Uneven Wear.

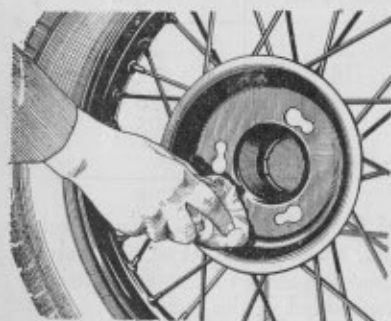
Because the front wheels are "cambered," or lean outwards, the outer side of the tyre tread wears more than the inner. To minimise the effect of such wear, turn the tyres, say every three or four thousand miles, so that the more worn sides are next to the car.

At the same time, exchange the near and offside tyres so that the unequal weight distribution and consequent wear caused by road camber are shared.

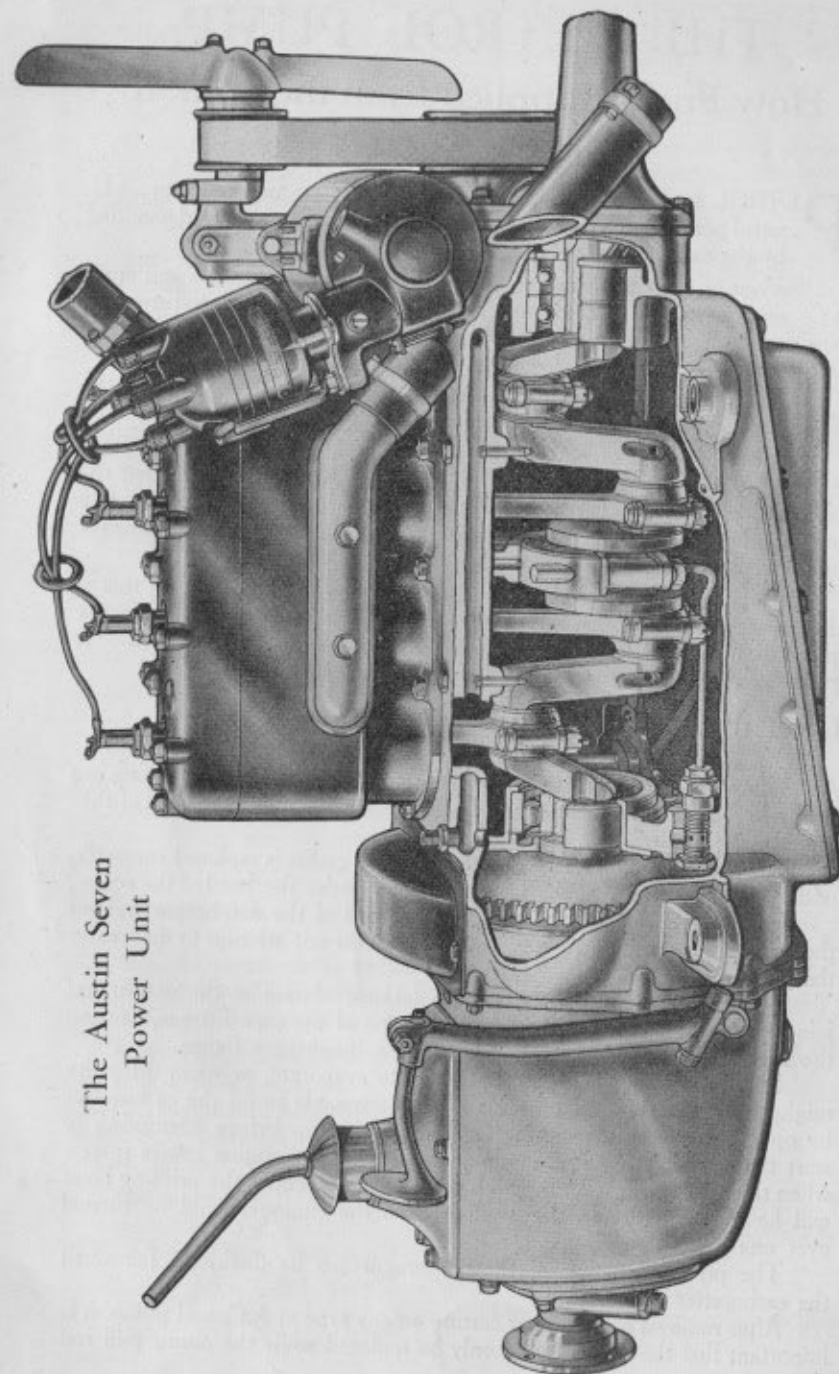
If the front tyres begin to wear rapidly, have the tracking of the front wheels checked immediately and, if necessary, adjusted.



Tighten the wheel nuts alternately and securely.



Wipe the inside of the wheel with an oily rag.



The Austin Seven Power Unit



# THE PETROL PUMP.

## How Fuel is supplied from the Tank to the Carburetter

**P**ETROL is drawn from the tank at the rear by means of an A.C. petrol pump which advances the fuel in the correct quantity demanded by the carburetter, no more and no less.

Service on the petrol pump is available at all Austin Dealers and at all A.C. service stations, which are prepared with parts and fixtures for repairing and adjusting all pumps if any trouble is experienced with the fuel supply.

Make sure that any difficulty is not due to causes apart from the pump before attempting to do anything to the pump.

If there appears to be lack of fuel at the carburetter, first ascertain if there is any fuel in the tank, and if not, replenish. Make sure that the pipe and connections between the tank and the pump, and between the pump and the carburetter, are not leaking. In case of broken or damaged piping replacement should be made.

It may be that the filter cover of the petrol pump is loose. If this is the case, tighten the main nut at the top, first ascertaining that the cork gasket lies flat in its seat and is not broken or unduly compressed. A gasket compressed hard may need to be replaced.

### Clean the Filter.

Occasionally remove the cover and clean the filter screen underneath it. Also remove any sediment from the chamber below the filter by taking out the drain plug (F.) Make sure that the fibre washer is under the head of the plug before replacing.

When re-assembling, take care that the cork gasket is replaced correctly, under the cover, and that the fibre washer is under the head of the screw.

If petrol appears to be leaking at the edge of the diaphragm tighten the cover screws alternately and securely, but do not attempt to dismantle the pump body.

Sometimes there appears to be a leakage of fuel at the diaphragm joint. The leakage may actually exist at one of the pipe fittings, causing the fuel to run down the pump on to the diaphragm flange.

In hot weather when petrol is likely to evaporate, or when difficulty might be expected on cold mornings, it is advisable to fill the carburetter by operating the hand priming lever on the pump before attempting to start the engine. It will be appreciated that if the engine comes to rest when the rocker arm is on the high point of the eccentric the priming lever will be inoperative. In the event of this the engine should be turned over one revolution by hand.

The pumping action of the diaphragm can be distinctly felt until the carburetter bowl is full.

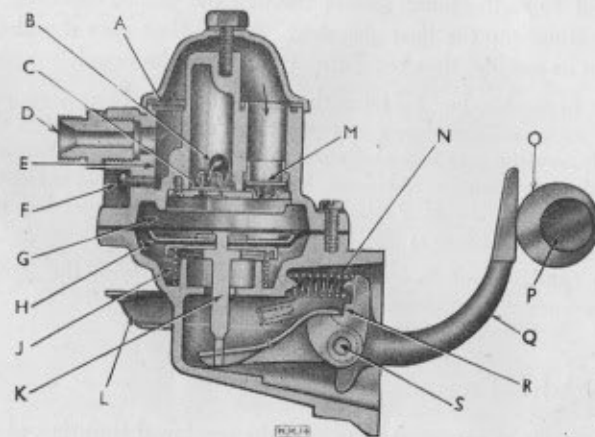
After removal of the upper casting on any type of A.C. fuel pump it is important that the cover should only be replaced while the pump pull rod

is at the top of its stroke. This is to ensure sufficient flexing of the diaphragm to allow its normal working movement.

### How it works.

By revolving shaft (P) the eccentric (O) will lift rocker arm (Q) which is pivoted at (S) and which pulls the pull rod (K), together with the diaphragm (H), downward against the spring pressure (J), thus creating a vacuum in the pump chamber (G).

Fuel from the rear tank will enter at (D) into sediment chamber (E) and through the filter gauze (A) and suction valve (M) into pump chamber



The A.C. Fuel Pump.

F—Drain Plug.

L—Priming Lever.

(G). On the return stroke spring pressure (J) pushes the diaphragm (H) upward, forcing the fuel from chamber (G) through pressure valve (C) and opening (B) into the carburetter.

When the carburetter bowl is filled the float in the float chamber will shut off the inlet needle valve, thus creating a pressure in pump chamber (G). This pressure will hold diaphragm (H) downward against the spring pressure (J) and it will remain in this position until the carburetter requires further fuel and the needle valve opens.

The rocker arm (Q) is in two pieces, the outer one operating the inner by making contact at (R) and the movement of the eccentric (O) is absorbed by the "break" when fuel is not required.

Spring (N) is merely for the purpose of keeping the rocker arm (Q) in constant contact with the eccentric (O) to eliminate noise.

# ZENITH CARBURETTER

## Cleaning and Adjustment for good Performance

THE carburetter fitted to the Austin Seven is the Zenith "V" type, embodying the well known principles of main and compensating jets.

Petrol from the pump passes through the union, the filter and the needle seating into the float chamber. As the float rises it will close the needle on its seating, thus regulating the flow of the petrol.

The float chamber contains the main jet, the compensating jet, the capacity well, and the slow running jet. Petrol flows through the main and compensating jets and also rises in the capacity well. From the jets it flows along two separate channels into a common channel in the emulsion block attached to the float chamber. This main channel has its outlet in a nozzle which projects into the choke tube.

The capacity well is in direct communication with the atmosphere, and the compensating channel in the emulsion block.

### Starting the Engine.

To obtain an easy start from cold the combined throttle and strangler control on the dashboard should be extended to its third position, and the engine should be given, by hand, a few turns to free the working parts. Then pull the self-starter control knob and when the engine is running release the strangler control to the first notch.

In cold weather it may be necessary to hold the strangler control out for a few minutes while the engine warms up, and to run the car for the first few minutes with the knob in the first notch. As soon as the engine is warm, however, the control knob should be pushed right in, otherwise the mixture will be too rich.

If difficulty in starting the engine is experienced, ascertain that the strangler flap is closing properly and if necessary adjust the wire.

A choked slow running jet will also cause difficulty. The jet should be cleaned only by blowing through it, either with a tyre pump or orally.

Trouble can also be experienced if the throttle is not open sufficiently when the strangler knob on the dash is in the first notch. In this case turn the adjusting screw a little to the right to open the throttle wider.

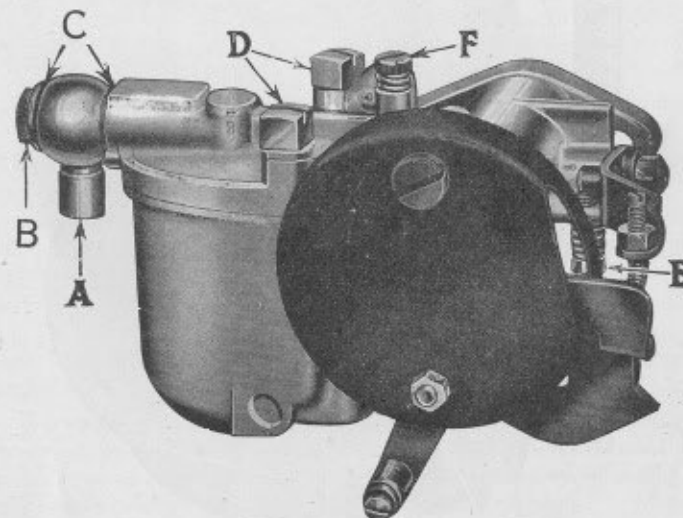
If the engine does not idle as slowly as desired, turn the screw to the left to close the throttle slightly.

A weak mixture may cause difficulty in slow running and this may be adjusted by turning the regulating screw clockwise to enrich the mixture. Do not make the mixture too rich or the engine will "hunt," or will tend to choke when slow running while warm.

### Adjustments.

No adjustments should be carried out unless absolutely necessary.

If the engine is positively poor in accelerating when it is running at a sufficiently warm temperature, and the adjustments described will not remedy the trouble, it may be desirable to fit a larger compensating jet.



The V Type Carburetter (without Air-Cleaner).

- |                |                    |
|----------------|--------------------|
| A—Petrol Union | D—Retaining Bolts  |
| B—Union Nut    | E—Adjusting Screw  |
| C—Washers      | F—Regulating Screw |

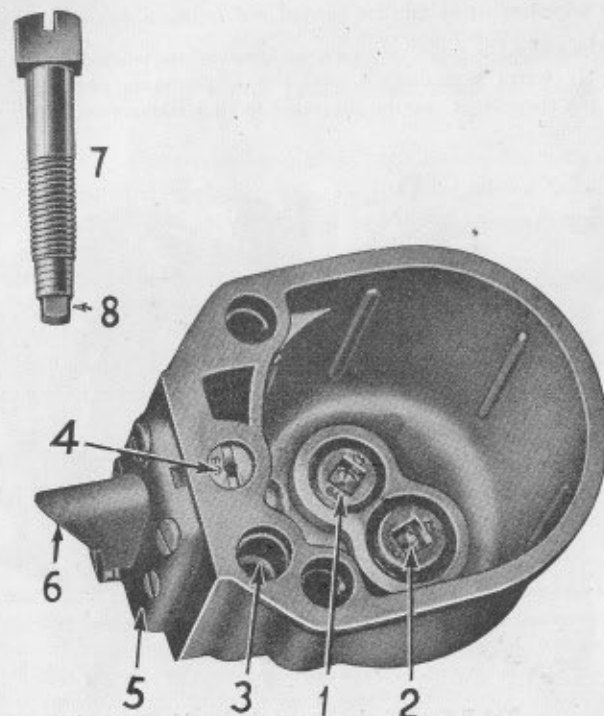
If there is a lack of power and speed, this may be due to the main jet being partially choked, or if greater power is desired a larger size main jet may be fitted.

Make sure that the strangler flap opens fully, for if this sticks in a partially closed position it will restrict the speed of the car and increase petrol consumption.

Do not, however, alter the jets unless you are quite sure that other parts of the engine, including sparking plugs, ignition and valves are in order, and that compression is good. There are no moving parts in the Zenith carburetter, so that nothing can get out of adjustment when once set.

## Cleaning.

The bowl of the carburettor should be removed occasionally for cleaning. Take out the two retaining bolts and the bowl will drop into the hand. On turning the bowl upside down the float will fall out and reveal the main and compensating jets at the bottom of the bowl.



The Carburettor Bowl.

- |                   |                               |
|-------------------|-------------------------------|
| 1 Main jet        | 2 Compensating jet            |
| 3 Capacity well   | 4 Slow-running jet            |
| 5 Emulsion block  | 6 Nozzle                      |
| 7 Retaining bolt. | 8 Square end to form jet key. |

The jets are removed by fitting into them the squared end of one of the retaining bolts and using a spanner on the other end. To clean the jets wash them in petrol, and blow through them to remove obstruction. Do not use wire.

The connection from the petrol pump should be dismantled and the filter thoroughly cleaned in petrol. When reassembling take care that the washers on either side of the union are correctly replaced.

## Standard Settings.

Sizes of Zenith jets normally run in 5's—the higher the number the larger the jet.

Settings are likely to be varied to suit certain markets. Standard settings are:—

Choke	...	...	...	...	17
Main Jet	...	...	...	...	57
Compensating Jet	...	...	...	...	50
Slow-running Jet	...	...	...	...	60
Progression Jet	...	...	...	...	50
Needle Seating	...	...	...	...	1.5 mm.
Capacity Tube	...	...	...	...	2

## "Leaded" Fuels.

Provided that the same reasonable attention is given to the valves and other adjustments as with ordinary petrol there will be no trouble when using "leaded" fuel (petrol containing a small proportion of tetraethyl lead).

The appearance of the valves when running on "leaded" fuel differs from that associated with ordinary petrol but this is a well recognised fact to which no significance should be attached.

The deposit from such fuels can be removed by "scrubbing" the valves and their seats with a stiff wire brush of the type used for cleaning files (a "file card"), after which the valves can be ground-in in the normal manner.

We would recommend this method of cleaning for all valves, whether they have operated with leaded or ordinary fuels, as it eliminates the possibility of leaving small amounts of deposit on the valve seats which tend to cause damage or prolong the "grinding-in" process.

## Air Cleaner.

On export models an oil wetted air cleaner is fitted to the carburettor.

At frequent intervals, say weekly in countries where dust is constantly experienced, the silencer needs cleaning and re-oiling. It is taken off the carburettor by undoing two nuts and it should be swilled in a shallow pan of petrol.

After drying, the metal gauze mesh should be re-oiled with engine oil, allowing the surplus to drain off before refitting the cleaner.

If the air cleaner is neglected it becomes choked with dirt, so that the cleaning efficiency of the device and its valuable protection against engine wear are not maintained.



# THE COOLING SYSTEM.

## Precautions to take against Freezing and Overheating

**T**HE cooling of the engine is maintained by a capacious radiator which should be filled with rain water if available, up to within about one inch of the top of the filler. The capacity of the radiator, pipes and cylinder jackets is 9-10 pints.

In Winter an anti-freezing mixture should be added to the water in the radiator, because in very severe weather the water may freeze and thus damage the cylinder block or the radiator itself. Moreover, when an anti-freeze mixture is used, there is no need to draw off the water to prevent damage by frost.



The Water Level.

A—Maximum. B—Minimum.

There is a spring-loaded valve in the top tank of the radiator to prevent overflow by splash. When emptying the system the filler cap must be removed or an air lock may prevent complete drainage. This must be particularly remembered in frosty weather.

Smith's "Bluecol" and Price's "Zero" are suitable.

If such a mixture is not used, care should be taken to see that the water is drained off completely, for, in case of freezing, it will do harm by lodging in small spaces, and fracture of the cylinder block may result. In Great Britain the climate does not very often call for the cooling system to be drained, but it is well to err on the right side and take due precaution against damage if frost be threatened.

### Freezing.

In frosty weather freezing may occur first at the bottom of the radiator or in the lower hose connection. It is sometimes possible to feel ice in the hose and break it by squeezing.

Ice in this hose will stop water circulation and may cause boiling.

Before using anti-freeze mixture tighten the cylinder-head nuts to make sure that none of the mixture gets into the cylinders. The mixture may do considerable damage if it contaminates the engine oil.

### Flushing.

To prevent the gradual formation of deposits in the cooling system with consequent impeding of the circulation, the use of hard water should be avoided. Soft water, rain-water (syphoned from the top of the barrel where it is clean) or, failing that, water that has been boiled, should be used.

Occasionally flush out the water cooling system by opening the drain cock at the bottom of the radiator and allowing water to run through until it comes out clear.

## Causes of Overheating.

Overheating may be attributed to one or more of the following causes :—

Slack fan belt. The belt can be tightened by turning the fan spindle in its bracket after loosening the clamping-nut.

Excessive carbon deposit in cylinders. See "Running Adjustments"

Running with ignition too far retarded. (See page 31.)

Using oil of poor quality, or lack of oil in the reservoir. See "Engine Lubrication."

Partial choking of the oil jets. See "Engine Lubrication."

Improper carburetter adjustment, giving a mixture too rich or too weak. See "The Carburetter."

Failure of water to circulate, because of choked radiator, water level below the tops of the radiator tubes, or loss of water through leakage from connections.

Overcooling is almost as bad as overheating. If the engine tends to be too cool, use a radiator muff.

Trouble arising from a damaged radiator generally necessitates its dismantling and despatch to a repair depot.



Be sure the road is clear before opening a door.

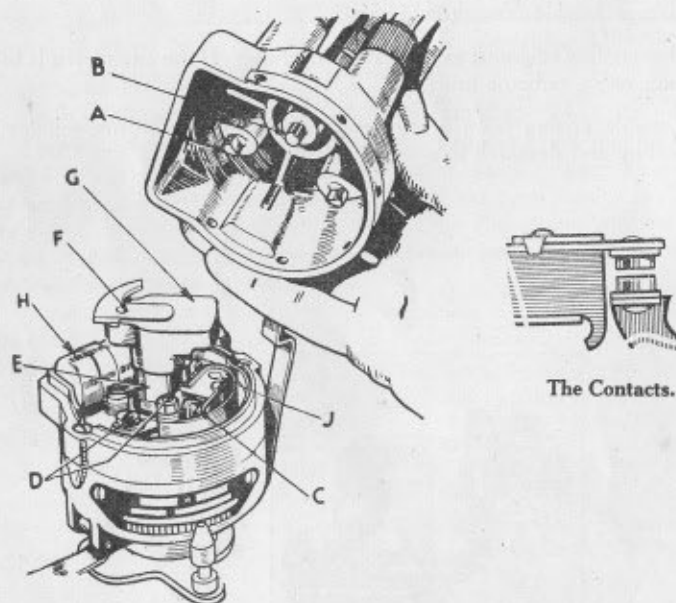
# THE IGNITION SYSTEM

## Cleaning the Distributor; Lubrication Fault Finding

THE Coil Ignition Equipment is provided with an automatic advance mechanism, which relieves the driver of the necessity of constant adjustment of the hand ignition control. Its advantages are particularly evident when accelerating, and during hill climbing, the danger of pre-ignition, knocking or "pinking" being very much reduced.

The device is housed in the distributor body and it consists of a centrifugally operated mechanism by means of which the ignition is advanced in proportion to the engine speed.

Very little attention is needed to keep the ignition equipment in first-class condition; we advise that it is inspected occasionally and the following instructions on lubrication, cleaning and adjustment should be carried out.



Distributor and Contact Breaker.

- |                 |                    |                            |
|-----------------|--------------------|----------------------------|
| A Electrode.    | D Locking Screws   | G Rotating distributor arm |
| B Carbon Brush. | E Rotating Cam     | H Condenser.               |
| C Contacts      | F Metal Electrode. | J Contact breaker pivot    |

## The Distributor.

The distributor cover can be removed on springing aside its two securing clips. The electrodes "A" and "F" and the inside of the cover are then accessible for cleaning with a dry duster. See that the carbon brush "B" is clean and moves freely in its holder.

After the first 500 miles running it is usual for the car to be taken to a service station to have various minor adjustments made to the engine. As most of the bedding down of the contact breaker heel occurs during this period the gap between the contacts must be checked and if necessary, re-set to give a maximum opening of .012 ins.

After this, the gap between the contacts will not require adjustment until a considerable mileage has been covered, unless the contacts have burned. The work of re-setting the contacts when this has occurred, should be left to a skilled mechanic. For the normal adjustment, first turn the engine by the starting handle until the contacts are seen to be fully open. Then, using the ignition screwdriver, slacken the two screws "D" in the contact plate, and move the plate until the gap is set to the thickness of the gauge. After making the adjustment care must be taken to tighten the locking screws.

## The Coil.

The coil needs no attention apart from keeping the terminals tight and the top clean.

## Ignition Switch and Warning Lamp.

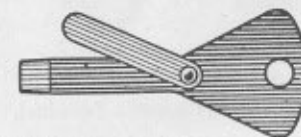
The key, by means of which the ignition is switched on, should be withdrawn when the engine is not running. This will ensure that the battery does not discharge by the current continuing to flow through the coil windings.

The warning lamp on the instrument panel will light when the ignition is switched on and the engine is running slowly or is stationary. Should the bulb of the warning lamp fail this will not affect the ignition, but it should be replaced as soon as possible so as to act as a safeguard to the battery. It can be removed from its socket when the small cover plate holding the red glass is unscrewed. The replacement bulb should be a 2.5 volt 5 watt screw cap type (Lucas No. C252A) as originally fitted.

## Lubrication.

The distributor spindle bearing is lubricated by means of an oiler which needs a few drops of thin machine oil every 1,000 miles.

Every 3,000 miles give the cam and also the pivot "J" on which the contact breaker works, a smear of Mobilgrease No. 2. Withdraw the rotating arm "G" from the top of the



Ignition Screwdriver and Gauge

spindle by lifting it off and add a few drops of thin oil to the top of the spindle. Do not remove the screw exposed to view, as there is a clearance between the screw and the inner face of the spindle through which the oil passes to lubricate the cam bearing. Take care to refit the arm correctly and to push it on to the shaft as far as possible.

The moving parts of the automatic timing control must be lubricated with a good grade thin engine oil. To render the control accessible, remove the distributor moulding and lift off the rotating distributor arm. Then remove the contact breaker moulding by withdrawing its two securing screws. Take care to refit the contact breaker moulding in its original position.

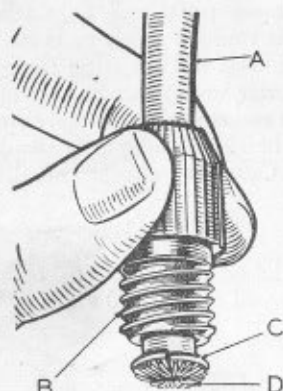
## High Tension Leads.

If the high tension cables show signs of perishing or cracking, they must be replaced. Use only 7 m.m. rubber covered ignition cable for all high tension leads.

To make a connection to the distributor or coil terminals, thread the knurled insulating nut over the lead, bare the end of the cable for about  $\frac{1}{2}$  of an inch, thread the wire through the brass washer provided, and bend back strands. When the moulded nut is screwed home, the cable will be securely clamped, and the nut will support the cable, and prevent vibration and fracture.

## Ignition Faults.

If the engine will not fire, or fires erratically, the trouble may arise from the carburetter, or petrol supply and not the igniton. A partially choked jet, an incorrect petrol level, or air leaks into the induction system may be the faults. Equally, sooted plugs can be suspected, when dismantling and cleaning them will remedy the trouble. If the batteries have run down, or the terminals have worked loose, quite obviously there will be no spark, and the same results can be expected if the distributor electrodes and contact breaker have been neglected and are dirty.



High Tension Terminal.

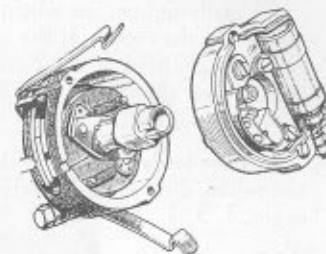
A—H.T. Cable B—Moulded Terminal  
C—Washer D—Cable Strands

The coil can be tested by removing the cable from the centre socket on the distributor cover, and holding the end of this cable about  $\frac{1}{2}$  inch from some metal part of the car while the ignition switch is on and the engine is turned. A strong and regular spark will result if the coil is in order. Clean the top of the coil and ensure that its terminals are tight before making this test.

## Short Circuits.

To test for short circuits in the low tension wiring (the cables from the switchboard to the coil, and coil to distributor) which would equally cause irregular running, have the engine turned while the ignition is switched on, and watch the ammeter reading. It should rise and fall as the contact breaker points close and open.

This test will also indicate if the contact breaker is functioning correctly. If the contacts remain open or do not fully close, the reading will not fluctuate.



Contact Breaker.

Assembly removed to expose automatic timing.

If the high tension cables from the distributor to the plugs are not securely attached to the distributor, misfiring may occur. Or, if the rubber insulation on these cables shows signs of perishing and cracking, there may be leakage of the current giving rise to the same symptoms. Renewing the cables is then the remedy.

If, after verifying these points, the trouble remains undiscovered the equipment should be examined and tested by the nearest service depot of the makers.

## Timing the Ignition.

As it is essential that a spark should occur at the plug points as each piston reaches the top of its compression stroke, re-timing after dismantling needs care, but should present no difficulty.

In order to reset the ignition timing remove all sparking plugs except No. 1 and, using the starting handle, turn the crankshaft until No. 1 piston is at top dead centre before a firing stroke. The compression felt at the handle will denote the correct stroke. Watch the valves, too, as on the firing stroke both inlet and exhaust valves will be firmly seated. Top dead centre No. 1 piston is also marked on the flywheel ( $1/4$ ), which can be seen after removing the clutch pit cover (see illustration on page 39), but actually it is necessary for the ignition to occur somewhat earlier. Therefore turn the flywheel back about  $\frac{1}{2}$  in. (12 mm.). Remove the distributor cover, slacken the screw in the clip of the distributor casing and turn the casing until the contact breaker points just begin to open, with the rotating centre arm pointing to the position of No. 1 electrode in the distributor cover. The spark is then correctly timed for No. 1 cylinder, and of course, for Nos. 2, 3 and 4.



As the distributor cover carries the electrodes for the four cylinders, it will be realised that it is imperative the rotating arm can pass the spark to the correct sparking plug lead when compression is reached by each piston.

Finally tighten the adjusting screw, refit the distributor cover and test the car on the road. If the ignition seems too far advanced or retarded it can be readjusted at the distributor. There is a considerable amount of latitude for adjustment but only extremely small movement should be made at one time.

If the leads from the distributor to the sparking plugs have been disconnected they must be replaced in the firing sequence marked on the cover, 1, 3, 4, 2.

The

*Austin*

MAGAZINE

contains many useful hints designed to help the owner driver to do those "little attentions" that mean so much toward getting the best from his car.

Also there are detailed descriptions of the bigger jobs that can be tackled at home, explained in simple language, and properly illustrated.

There are special features, interesting stories by popular writers, travel and sports articles, and "motoring miscellanea."

Your Newsagent will deliver the Magazine to you for 4d. a month.

## THE SPARKING PLUGS

THE sparking plugs with which the Seven is now fitted are K.L.G. "Corundite" type F.50x.

The gaps of these plugs should be maintained between .022-in. and .025-in. If the gap is allowed to become too wide, misfiring at high speeds is liable to occur, and if too small, bad slow running and idling will be the results.

To give the maximum strength this type of plug is non-detachable, but when it is necessary to clean them after a few thousand miles' service, it is a simple matter to take them to a good garage and have them cleaned on a sandblasting machine. This will have the effect of removing the unburnt particles which adhere to the internal insulation, as well as any soot or oil which may have accumulated during use, and the resultant good running will amply repay the cost of this quick and simple operation.

When putting them back into the cylinders, make sure that the sparking plug washer is not defective in any way, and if it looks flat and worn, fit a new one so that you can be sure of obtaining a gas-tight joint.

When fitting be careful not to knock the top insulation of the plug, for although it has a strength which is much greater than the ceramic material usually used for the sparking plug insulation, a heavy knock might fracture the insulation and misfiring will occur.

Always remember that cheap oil and petrol, improper carburettor adjustment and excessive use of the choke will have the effect of causing the internal insulation to become foul and dirty, and also if the high tension leads are old and the rubber has become hard and cracked, electrical leakage may occur, with the result that the plugs will misfire. If the distributor points are out of adjustment fouling of the plugs is very liable to happen.

If you wish to obtain the maximum efficiency from your engine and also maintain the good petrol consumption which your car had when it was new, change your plugs every 10,000 miles, for old plugs are wasteful and give bad and sluggish running.



The "K.L.G." Corundite F.50X. Plug.

# LUBRICATION

## Use only the Recommended Oils and Greases

**T**HE correct lubrication of any piece of machinery is of the utmost importance, but for the modern high-speed automobile engine, which operates at sustained high temperatures and speeds, it is absolutely essential that only oils of the highest quality and correct grade be used. Inferior oils, or unsuitable oils, will almost inevitably cause excessive wear in an unduly short time.

We cannot over-emphasise the folly of using so-called "cheap" lubricants.

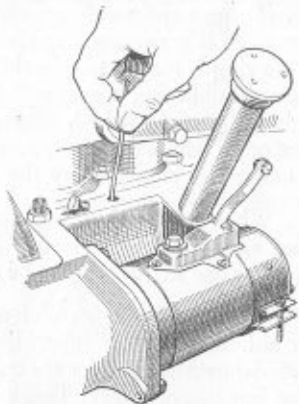
Modern cars use comparatively little oil, so that the cost of using a good lubricant is negligible compared with the cost of using inferior oil. Good lubricating oil ensures that you always get out of your car the best performance that it can give; it reduces carbon deposit, making frequent decarbonising unnecessary; it makes starting easier, thereby avoiding deterioration of the battery; it reduces engine wear and eliminates avoidable causes of mechanical breakdown with possible heavy repair bills.

### Colloidal Graphite.

Running-in Compound containing colloidal graphite, marketed by oil companies, is valuable for use during the running-in period and is added to the sump oil in the proportion of one pint to a gallon of any of the engine oils recommended by the Austin Motor Co.

It is always important, however, to prevent as far as possible oil dilution by water such as may be caused by condensation or leaking through the cylinder head gasket.

Lubricants represent the smallest proportion of your expenditure on the upkeep of a car, so that it is obviously false economy to use other than the best.



Cleaning the Oil Jets.

### Impurities.

But even the best oil becomes contaminated with certain impurities during use. In the engine, these may be unburnt fuel, carbon, metallic particles, moisture, etc., and although the oil itself does not deteriorate the presence of these impurities must reduce its efficiency as a lubricant and in time cause avoidable wear. Oils of the best quality resist contamination,

and consequent wear, to the greatest extent. Nevertheless, it is imperative that the crankcase be drained periodically to remove foreign matter, and subsequently refilled with fresh clean oil.

Drain the crankcase immediately after a run, when the oil is warm, and therefore fluid and thoroughly agitated. It will then carry away as much of the contamination as possible. Never flush the crankcase with paraffin—some will remain in the sump to contaminate the fresh oil, and, in addition, it may loosen, but not entirely remove, certain deposits which are best left undisturbed until the engine is overhauled.

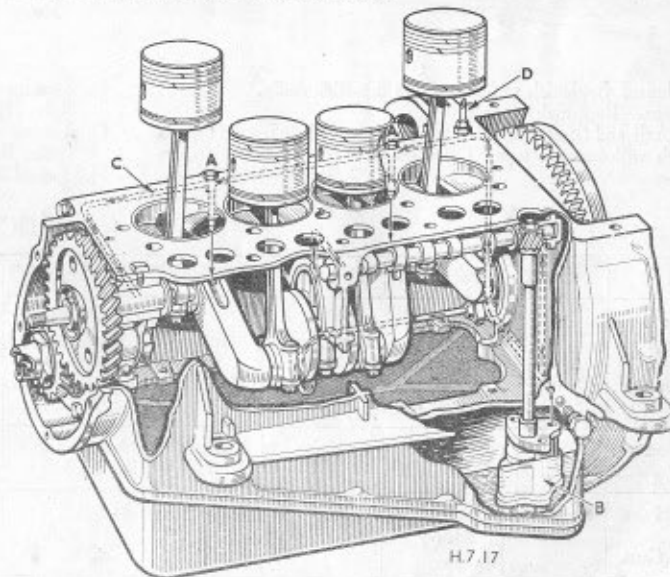
Rinse gauze filters in petrol and allow to drain before refitting. **Do not wipe with fluffy rags.**

Oil in the gearbox and back axle becomes contaminated with metallic particles from the gear teeth and these will cause unnecessary wear of the bearings unless removed. These units should also be drained periodically and may be flushed with a thin oil. This should be allowed to drain thoroughly, after which the unit should be filled to the correct level with fresh oil.

### Choice of Lubricants.

Some lubricants are lighter in colour and appear thinner than others. However, the colour of an oil or its appearance at atmospheric temperatures give no indication as to its efficiency under operating conditions and temperatures. Therefore, oil should never be judged by colour or apparent consistency.

The various lubricants which we officially recommend, each of them having the high grade standard of quality required by our Research Department, and all of them having proved entirely satisfactory in extended service, are tabulated on pages 36 and 37. They all have adequate distribution at garages and filling stations.



The Austin "Seven" Engine.

A—The oil jets.

B—Oil pump.

C—Oil ways.

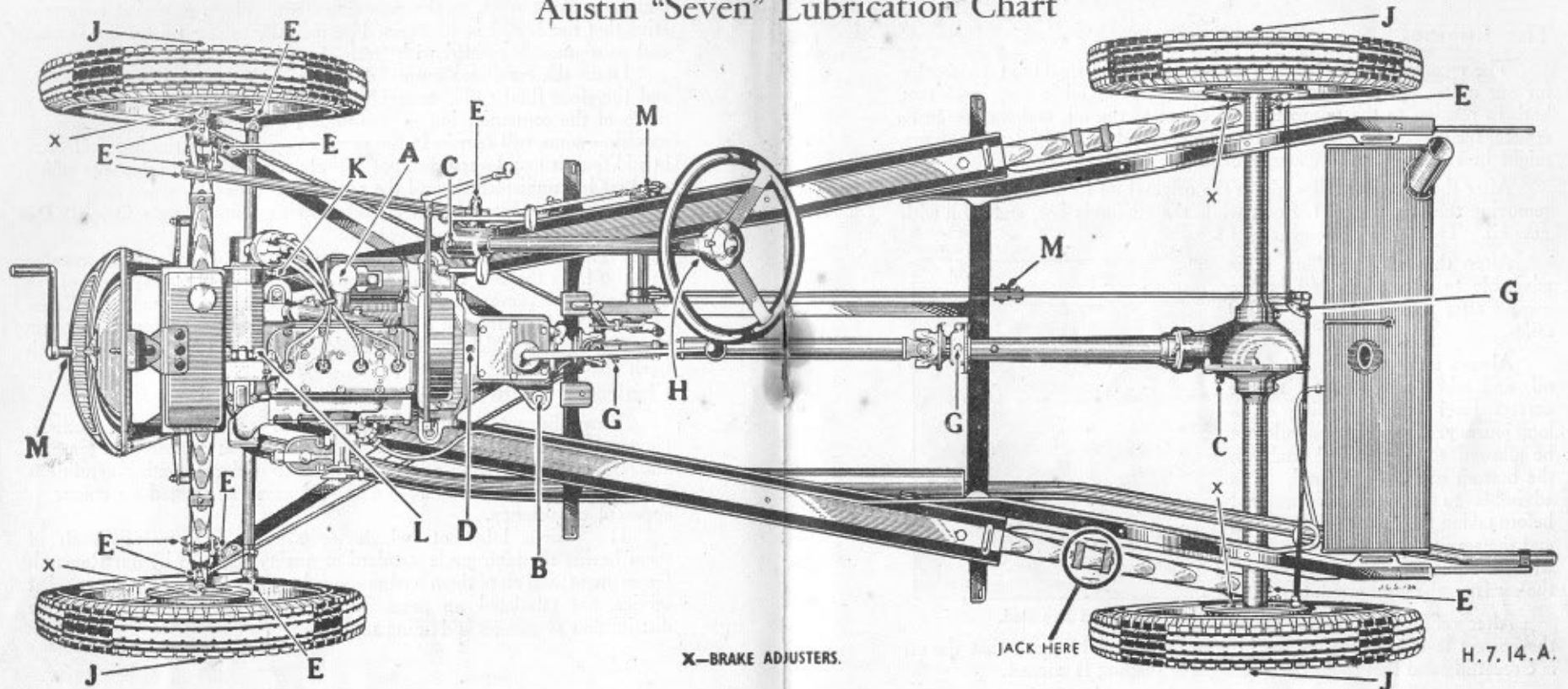
D—To pressure gauge.

**PRESERVE THE  
DEPENDABILITY  
OF YOUR CAR**

**USE ONLY THE BEST LUBRICANTS**

WE RECOMMEND  
MOBIL OIL SHELL CASTROL  
ESSOLUBE MOTORINE DUCKHAMS

# Austin "Seven" Lubrication Chart



A. Crankcase. Replenish to full mark on dip-stick **daily**.

B. Gearbox. Replenish **monthly**.

C. Rear Axle and Steering Box. Replenish **monthly**—Special Oil.

D. Clutch withdrawal sleeve. Oil **weekly**.

E. Steering Cross Tube (2). Steering Side Tube (2). Swivel Axles (2). Spring Bushes (6). Grease **weekly**.

G. Torque Tube, front end, Propeller Shaft, splined end. Rear Brake Balance Lever. Grease **monthly**.

H. Top of Steering Column. Oil **monthly**.

J. Hubs. Grease **monthly**.

K. Distributor. Oil sparingly every 1000 miles.

L. Fan Bearing. Grease **monthly**.

M. Brake and Throttle Control Joints, Starting Handle and Brake Pedal Shaft. Oil **weekly**.

## Recommended Lubricants.

	"Shell"	"Wakefield"	"Essolube"	"Prices"	"Duckham's"	"Vacuum"
<b>Engine :</b>						
Summer ..	Double Shell	Patent Castrol XL	Essolube 40	Motorine C	Adcoised NP3	Mobiloil A
Winter ..	Double Shell	Patent Castrol XL	Essolube 30	Motorine M	Adcoised NPXX	Mobiloil A
<b>Gear Box ..</b>	Triple Shell	Patent Castrol XXL	Essolube 40	Motorine C	Adcoised NP3	Mobiloil B.B.
<b>Wheel Hubs and Grease Gun</b>	Shell R.B. Grease	Castrolase Heavy	Esso Grease	Belmoline C	H.B.B. Grease	Mobilgrease No. 4
<b>*Rear Axle and Steering Box</b>	E.P. Spirax Heavy	Castrol Hi-Press Gear Oil	Essoleum Expee 110	Motorine E.P.	Triple XS Press	Mobiloil E.P.

	"Shell"	"Wakefield"	"Essolube"	"Prices"	"Duckham's"	"Vacuum"
<b>Distributor, Oil Cups and Oil Can</b>	Single Shell	Wakefield Oilit	Essolube 30	Hand-i-oil Heavy	Adcoised N.P.O.	Cargoyle Velocite D
<b>Upper Cylinder Lubrication</b>	Shell U.C.L.	Wakefield Castrollo	Petmix	Motorine U.C.L.	Duckham's Adcoids	Cargoyle U.C.L.
<b>Springs Rusted Parts or Squeaks</b>	Shell Penetrating Oil	Castrol Penetrating Oil	Essolube 30	Price's Penetrating Oil	Duckham's Easing Oil	Voco Penetrating Oil

\*Also Jaba Oil.



## The Engine.

The recommended lubricants are of the correct quality and viscosity for our units. The matter of the proper grade of oil is very important both in relation to the pump used to circulate the oil, and the gauge to register the pressure; if a very thick oil were used on a cold day, the pump might be strained or the gauge broken.

After the first 500 miles, drain the original oil from the reservoir by removing the plug in the bottom, while the engine is hot, and refill with new oil. The sump capacity is half a gallon.

After the first re-filling it is advisable to change the oil in the engine after every 2,000 to 3,000 miles.

Always inspect the level of the oil, and add enough to fill to the correct level before starting on a long journey. The oil level should not be allowed to go below  $\frac{1}{4}$  inch on the bottom of the dipper rod. It is advisable to wipe the dipper rod before taking the reading of the level, and the reading should only be taken when the engine is not running and the car is on the level ground.

After refilling with fresh oil to the correct level, run the engine for a few moments to check that the oil is circulating and that the oil pressure gauge reading is correct.

## Cleaning the Jets.

The front and rear main bearings of the engine are of the ball and roller type, and the oily vapour in the crankcase is quite sufficient to lubricate these. The centre main bearing and the camshaft bearings are lubricated under pressure from the pump.

The pistons are lubricated by the oily vapour, and lubrication of the big-ends is effected by catching oil from the pump-fed jets in pockets on the crankshaft webs.

It is advisable to make sure these jets are always clear, and to do so the plugs over the jets (A) (see illustration on page 35) should be occasionally removed and a piece of stiff wire, not above 18 gauge ( $\frac{3}{64}$  in. diameter) inserted through the jets. This prevents foreign matter accumulating in the oil jets and choking them.

Every 3,000 miles remove the oil reservoir. The gauze oil tray will then be accessible for removal. Scrupulously clean the gauze and remove all dirt from inside the reservoir and replace them. Carefully remake the joint with the packing washer, covering both sides of it with grease. When tightening up the nuts holding the oil reservoir to the crankcase, do not pull up one nut tight, but tighten each nut equally, a little at a time.



The Oil Dip Rod.

See that the drainplug is screwed up tight, then fill the crankcase with oil to the maximum level as shown on the dipper rod. About half a gallon will be enough to fill.

## Oil Gauge.

The oil pressure gauge records in pounds per square inch.

The dial will probably record the maximum pressure when the engine is started from "cold" but as the engine warms up in running, so the oil will become more fluid and the pressure may fall quite low—it may even record only one pound. This, however, is sufficient because if the oil is circulating that is all that is necessary.

A sudden rise to a higher pressure reading than normal, while the car is running with a warm engine, may be an indication of an obstruction in the oiling system. This fault may be remedied by cleaning the oil jets (see page 35).

A flickering finger may be an indication of a serious deficiency of oil in the crankcase, a damaged oil pipe line or a loose gauge pipe connection.

Any unusual difference from normal registration should be quickly noticed and the cause of the variations ascertained and set right.

## Gearbox.

In the angle formed by the floor and the raised portion which is over the gearbox, on the near side, is a movable cover secured by a screw. Unscrew and remove this cover. Immediately below it is the plug of the hole through which oil is poured into the gearbox.

Carefully follow the lubrication chart for oil most suitable for the gearbox. Do not use thick gear oil, otherwise seizure of bearings may result.

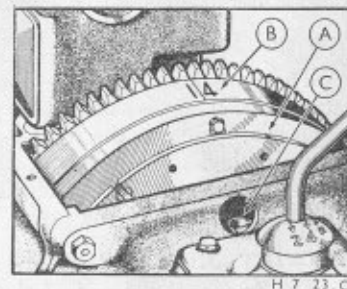
Maintain the oil at the correct level, i.e., bottom of the filler plug hole.

The gearbox should be drained, and refilled to the correct level after the first 1,000 miles and every 6,000 miles subsequently. Quantity approximately  $1\frac{1}{2}$  pints.

## Clutch.

The clutch surfaces being of a fabric material must be kept free from oil and grease, or the clutch will fail to grip. Lubricate the operating ring lightly through the oiler, as shown on the sketch, once a week.

The oiler can be seen from the driving seat when the rubber mat has been turned back. Press the clutch pedal down a little and the oiler will move forwards to facilitate lubrication.



Austin Seven Flywheel.

A—Flywheel. B—Flywheel Timing Mark  
C—Clutch Ring Lubricator.

## Steering Gear.

To obtain easy steering it is important to give regular attention as regards lubrication. The oil plug is on the top of the steering box and if a charge of E. P. lubricant is given once a month it is sufficient to lubricate the bearings of the worm and sector and also lubricate the worm.

If too much is injected at this point, it will get up the column and exude round the steering wheel. The bearing at the top of the column, just under the steering wheel, can be given a little oil from the oil-can.

Nipples on each swivel axle, at each end of the steering side tube and at each end of the steering cross tube, should be given a charge of grease once a week.

It is advisable to jack up the front axle for this job.

## Rear Axle.

For the rear axle, attention every 1,000 miles should be sufficient. A special oil is used and is injected into the axle casing from the nearside, using the special adapter. First remove the plug, then place the end of the adapter into the oiling hole, and grasping the barrel of the grease gun, push. The plug also serves as an oil level indicator.

Therefore do not replace the plug at once, but give time for the superfluous oil to run out, if too much lubricant has been injected. This is most important, because if the back axle is overfilled the lubricant may leak through on to the brakes and render them ineffective.

Drain the rear axle every 6,000 miles, and replenish to the correct level.

It is most important to use only the correct grade of rear axle lubricant. Different brands of extreme pressure oils will not mix and it is essential to use the same brand when "topping up." If the same brand is not available the axle should be emptied and refilled.

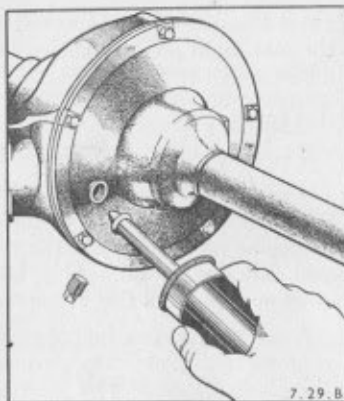
## Torque Tube.

There is a raised casing in the centre of the floor. Behind the front seats, on this casing, is a detachable panel, which is removed to give access to the greasing point on the front end of the torque tube, which requires grease monthly. The hole is plugged with a short bolt, which must first be removed with a spanner (actually the wheel-brace will remove the bolt very effectively). Use the grease gun adapter.

## Propeller Shaft.

The front, splined end of the propeller shaft is lubricated through a hole in the floor tunnel on the near side and just behind the gearbox.

A small leather flap covers the hole. Grease should be applied through the grease nipple monthly. It may be necessary to move the car in order to turn the shaft and expose the nipple.



Oiling the Rear Axle.

## Brake Gear.

All joints, etc., should be oiled once a week, including a hole on the brake pedal shaft below the steering box. Use a brush dipped in oil to lubricate the cross shaft bearings.

The front wheel brake cam spindle is lubricated from the swivel pin.

## Front Axle.

The swivel pins are lubricated with the grease gun and should receive attention once a week.

## Radius Rod Anchorage.

Oil should be applied occasionally to the cups and ball flange forming the radius rod anchorage on the front cross member, just below the rear of the gearbox.

## Fan.

The fan bearing requires a charge of grease once a month through the nipple on the fan bracket.

## Road Springs.

The rear ends of the rear road springs where they are attached to the axle are provided with greasing nipples, and should be given a charge once a week if the car is continually used. To ensure the best results it is essential that the road springs should be lubricated. A penetrating oil should be used. It can be sprayed from the container or applied with a brush. If the rear wheels are removed the springs are fully accessible.

The front spring should be similarly lubricated, and the shackles greased at the four nipples provided.

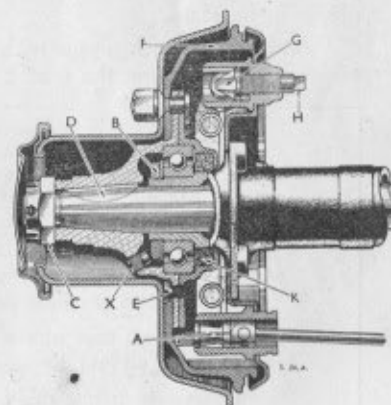
## The Hubs.

Both front and rear hubs require occasional greasing.

Remove the road wheel. Turn the hub until the plug "X" is at the top. Screw out the plug, apply the adapter of the grease gun and inject about a quarter of a gun full.

It is important that the hubs are not given too much grease otherwise it will penetrate to the brakes to render them ineffective.

Once a month, or every 2,000 miles is often enough for this attention.



Austin Seven Rear Hub.

- |                   |                  |
|-------------------|------------------|
| A—Expander Cone   | F—Brake Drum.    |
| B—Bearing Nut.    | G—Adjuster Cone. |
| C—Axle Shaft Nut. | H—Adjuster Head. |
| D—Axle Key.       | K—Felt Washer.   |
| E—Set Screw.      | X—Grease Plug.   |

### Speedometer Drive.

The flexible shaft of the speedometer drive from the gearbox should be lubricated by oiling from the speedometer end every 2,000 miles. To do this uncouple the union nut behind the speedometer.

The shafting should also be taken down and thoroughly cleaned about every 6,000 miles. It should then be lubricated along its whole length by applying thin grease, so that when the shaft is replaced in its tubing there will be a good supply of lubricant.

Grease should also be smeared round the flange where it rubs the washer of the key piece which connects to the speedometer.

### Upper Cylinder Lubrication.

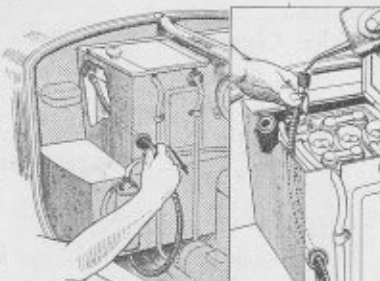
Upper cylinder lubrication has been found to be beneficial to the running of the engine.

Mixing it with the fuel when refilling the tank is quite satisfactory. Follow the instructions given with the various brands.

### Grease Nipples.

If a grease nipple becomes choked, unscrew and remove it. It can usually be cleared by soaking it in paraffin or petrol, and syringing either of these through it, but should it be found impossible to clear it, fit a new nipple in its place.

Always wipe each nipple with rag and carefully remove dirt and old grease before applying the gun.



Removing and Oiling the Speedometer Cable.

## AN INVITATION

AUSTIN OWNERS and others interested are invited to visit Britain's largest self-contained motor works and see how Austin Cars are made.

The normal tour of the Works occupies two hours, and appointments should be made whenever possible.

Tours commence daily, except Saturdays and Sundays at 10 a.m and 2 p.m.

Visitors should ask the Commissionaire for the Reception Department, or make arrangements through a local Austin Dealer.

## THE GREASE GUN.

### Special Adapter for Injecting Rear Axle and Steering Box Lubricant.

THE type of grease gun supplied in the tool kit of all Austin cars incorporates features by which the chassis lubrication of the car is greatly simplified.

Once the gun has been charged all that is necessary is to push the ram against the nipple until the contents are exhausted. Three or four strokes for each nipple are sufficient.

The ram is used for forcing grease through nipples, and the adapter for lubricating the back axle and steering box with special oil. For this operation remove the end cap from the barrel and charge the gun to about three-quarters of its capacity. Put the cap of the adapter on the open end and after removing the plug from the back axle, place the end of the adapter into the greasing hole, and, grasping the barrel, push. This will inject a large quantity of lubricant quickly.

When charging the gun with grease it should be filled with lubricant to about three-quarters of its capacity.





# ELECTRICAL EQUIPMENT

## Cleaning Commutators and Brushes ; Battery Attention

THE lighting and starting units on the Austin Seven car are arranged for wiring on the single wire system, one path of the current being provided by the frame instead of a second wire. It is therefore essential that all units are in good metallic contact with the frame.

Should difficulties arise that cannot be understood or remedied from the information given below, application should at once be made to the Austin Service Department or the nearest service depot of the makers of the equipment.

### Dynamo.

The dynamo is a simple self-regulating third brush machine. The only parts calling for any attention are the commutator and brushes, which are readily accessible when the cover is removed.

The commutator surface must be kept clean and free from oil or brush dust. It may be cleaned with ordinary soft rag, but if it has been neglected use fine glass paper. Blow away any carbon dust, see that the carbon brushes are wearing evenly and that they are free to slide in their holders.

The dynamo bearings are packed with lubricant before leaving the works. When the car is overhauled, it is advisable to have the machine dismantled and the bearings repacked with lubricant. This work is preferably carried out at a Lucas Service Depot.

### Dynamo Field Fuse.

A fuse is provided in the dynamo field circuit to protect the machine in the event of anything being wrong in the charging circuit, e.g., a loose or broken battery connection. The fuse is of the cartridge type and is housed with the half charge resistance in the cut-out and fuse unit on the engine side of the dash (see page 47).

If the dynamo fails to charge the battery at any time (indicated by a discharge reading being given on the ammeter during day time running) inspect the fuse and if it has blown replace it with the spare fuse provided, after inspecting the charging circuit wiring for loose or broken connections and remedying. This fuse must not be replaced while the engine is running. If the new fuse blows after starting up, the cause of the trouble must be found, and we advise that the equipment is examined at one of the Service Depots.

Never fit any fuse other than the Lucas standard fuse as originally fitted. The size of the fuse is marked on a coloured paper slip which can be seen inside the fuse.

### Starting Motor.

The commutator and brush gear are accessible on removing the sheet metal band cover. The unit requires very little attention beyond keeping the commutator clean and free from oil, brush dust, etc., as in the case of the dynamo. Remember that although the starter will turn the engine over, however stiff, it is advisable when cold, to crank the engine over by hand for two or three revolutions as this will considerably diminish the load for starting.

If the starter pinion jams in mesh with the flywheel ring when operating the starting motor switch, usually it can be released by putting the gear lever into top gear, and moving the car bodily backward and forward. If this plan is ineffectual the starter will have to be dismantled.

Never use the starting motor to propel the car, as it throws too severe a strain on the battery and the motor.

If the engine does not start at the first attempt, do not press the starter switch until the engine has come to rest. If this precaution is not adopted, the starter ring teeth on the flywheel, or the starter pinion teeth, may be damaged.

### Switch Board.

A key is provided by means of which the ignition switch is moved so that the engine can be started. When the slot into which the key fits is in a vertical position, the key may be withdrawn. The ignition is then cut off. To switch on the ignition, insert the key and turn to the right until the slot is in a horizontal line. The key cannot be withdrawn while the ignition is switched on; it must first be turned off and the slot be in a vertical position.

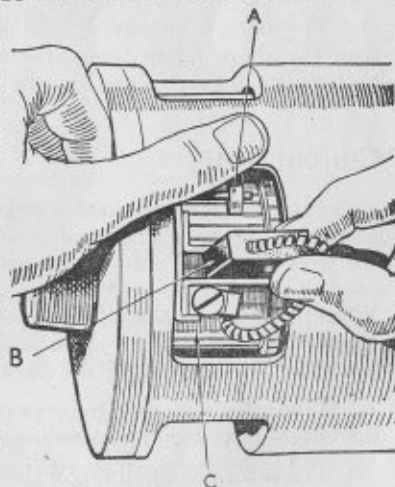
The lighting and charging switch positions are :—

"Low Charge."—Dynamo giving about half its normal output.

"High Charge."—Dynamo giving its full daytime output.

"Side."—Side Lamps and tail lamp on.

"Head."—Head Lamps, side lamps, and tail lamp on.



The Dynamo

A—Brush Spring. B—Brush.  
C—Commutator.

The dynamo automatically gives its full output when the headlamps are switched on.

## Dipper Switch.

The dipper switch has two functions—one to give the normal driving light, and one to dip the near side head lamp beam and at the same time switch off the offside headlamp.

If the headlights are on full, a touch of the foot on the switch alters the lights to the "dip and switch" position, and they remain so until another touch returns them to the "full on" position.

## Ammeter.

The centre zero ammeter indicates the rate at which the battery is being charged or discharged under all conditions. For instance suppose 2 amperes are consumed when the side and tail lamps are switched on, and that the ignition coil takes 2 amperes, then if the dynamo is generating 7 amperes the meter will show 3 amperes on the charge side of the scale. This is the current in excess of the lamp and ignition load that is available for charging purposes.

The ammeter gives an indication that the system is functioning satisfactorily. For example if no reading is given on the charge side of the scale when the ignition and charging switch is in the "High Charge" position and the car is running at say 20 m.p.h. with no lights on, then a fault in the dynamo charging circuit is indicated.

To determine the output of the dynamo, switch off all the lights and add the amount of current used for ignition (about 2 amperes at normal speeds) to the reading given on the ammeter.

The amount of current used for ignition may be somewhat higher than the above figure when starting. The ammeter does not indicate the amount of current used by the starter.

## Cut-out Unit.

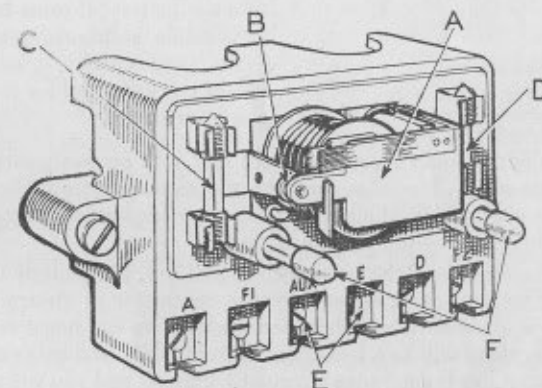
The cut-out is mounted together with two fuses as one unit, which also forms a junction box and incorporates the half-charge resistance for the dynamo. The cut-out automatically closes the charging circuit as soon as the dynamo voltage rises sufficiently above that of the battery. When the dynamo voltage falls below that of the battery the reverse action takes place, the cut-out opens and thereby prevents the battery from discharging itself through the dynamo.

Take care not to close the cut-out contacts when removing or replacing the cover, as this may cause damage to the equipment.

The two fuses fitted are of the cartridge type. One of them is connected in the accessories circuits, and will blow in the event of a short circuit in the wiring of the electric horn, windscreen wiper, and other units connected to the "AUX" terminal, the indication that the fuse has blown being the failure of these units.

The second fuse protects the dynamo, and is connected in the dynamo field circuit. The indication of a blown dynamo fuse is that the dynamo will fail to charge, no charge reading being given on the ammeter under normal daytime running conditions.

Spare fuses are provided for use in cases of emergency. Before fitting a replacement fuse, examine the wiring of the equipment the fuse protects for loose connections or short circuits, and remedy. If the new fuse blows and the cause cannot be found, we advise the owner to have his equipment examined at a Lucas Service Depot.



Cut Out and Fuse Unit.

- |                     |                          |
|---------------------|--------------------------|
| A—Cut Out armature. | D—Dynamo field fuse.     |
| B—Contacts.         | E—Accessories terminals. |
| C—Accessories fuse. | F—Spare fuses.           |

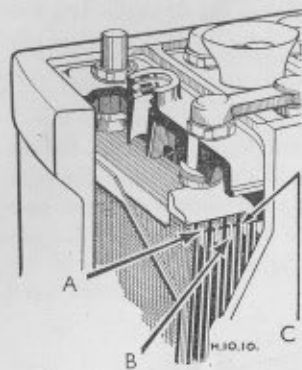
Never fit any fuse other than the standard Lucas fuse as originally fitted. The size of the fuse is marked on a coloured paper slip inside the fuse.

## Battery.

The battery is the reservoir of the energy generated by the dynamo and upon its satisfactory functioning depends the starting and running of the car.

The amount of attention needed is small and need take only a few minutes. Follow the directions given here and your battery will last longer and give better service.

When examining the battery, do not hold naked lights near the vent plugs as there is a possible danger of igniting the gas coming from the plates.



**The Battery**

A—Top of Separator.  
B—Top of Plates.  
C—Acid Level.

Keep the terminals clean and tight and well smeared with vaseline. A liberal smearing of vaseline protects the terminals from the corrosive action of the acid, which, if allowed to continue unchecked, may eventually result in a breakage of the battery wiring.

Keep the outside of the battery clean and dry, particularly the tops of the cells. Dirt and moisture will form a conductor of electricity, and if such a path is allowed to form between the positive and negative terminals of the battery there will be a leakage of current which will cause the battery to run down. Give the cell tops a regular wipe over and you will avoid this.

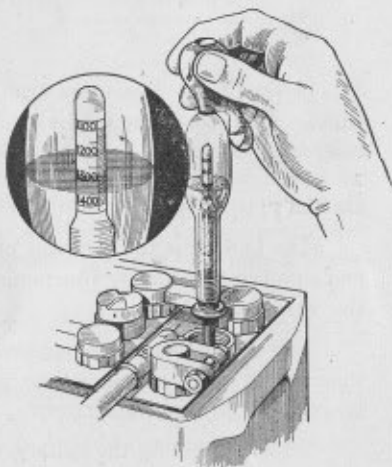
Once a month, make a point of examining the health of the battery by taking hydrometer readings. The operation is quite simple and need not take long. There is no better way of ascertaining the state of charge of the battery.

The specific gravity readings are:—1.285 to 1.300, battery fully charged; 1.210, about half discharged and 1.150 completely discharged. These figures are given assuming the temperature of the solution is about 60 degrees F.

Do not leave the battery in a discharged condition for any length of time. If the car is to be out of use for any length of time, see that the battery is fully charged and about every fortnight give it a short refreshing charge to prevent any tendency of permanent sulphation of the plates. In no circumstances must the electrolyte be removed from the battery and the plates allowed to dry, as certain changes take place which result in loss of capacity.

Once a month unscrew the filler caps and pour a small quantity of distilled water into each of the cells to bring the acid just level with the tops of the separators.

Distilled water can be obtained from any chemist and most garages. Do not use tap water, as it contains impurities detrimental to the battery. If any acid is accidentally spilled from the battery, it must be replaced by a dilute sulphuric acid solution of the same specific gravity as the acid in the cell. This is measured by a hydrometer.



**Test the specific gravity of battery electrolyte with an hydrometer.**

## The Electrolyte.

When the battery arrives empty (as in the case of cars sent abroad) the first thing to do is to fill and charge it.

This means that a fluid is prepared composed of one part (by volume) of pure brimstone concentrated sulphuric acid with three parts (by volume) of distilled water. Mix these in a glazed earthenware vessel. Great care must be taken in this operation. Add the acid in very small quantities, almost drop by drop, and stir with a glass rod.

**Never add the water to the acid.** This is highly dangerous and a serious explosion may result.

This mixing generates heat, and it is important that the electrolyte (as the mixture is called) should not be used in the battery before it has been allowed to cool. Pour the electrolyte into the cells of the battery by means of a lead, glass or celluloid funnel, until it completely fills the cells to the top of the vent hole. Allow the battery to remain in this condition for 10 minutes or so, then put in more acid solution so that each cell is again filled to the same point with electrolyte. The electrolyte will have a specific gravity of 1.285 when fully charged. Batteries should stand at least twelve hours after their first filling before charging is begun.

Of course if it is desired, the battery can be filled at almost any Service Station.

## Direction Indicators.

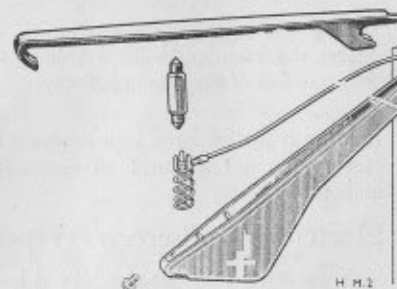
Every two or three months raise the "Trafficator" arm and, by means of a brush or other suitable article, apply a drop of thin machine oil, such as sewing machine or typewriter oil, to the hinge between the arm and the operating mechanism.

To replace a bulb, switch the "Trafficator" on and then, supporting the arm, move the switch to the off position.

Withdraw the screw on the underside of the arm and slide off the metal plate. The burnt-out bulb can then be replaced. To replace the metal plate, slide it on in an upwards direction so that the side plates engage with the slots on the underside of the spindle bearing. Finally, secure the plate by means of its fixing screw.

Bulbs fitted: Lucas No. 255, 6 volt, 3-watt festoon type.

If the direction indicators or electric petrol gauge fail to function, examine the fuse protecting them. This is fitted on the dash near the cut-out. If it has blown, inspect the wiring for a short circuit.



**The Direction Indicator.**



If the new fuse blows, the cause of the trouble must be found, and we advise that the equipment be examined by a Lucas Service Depot.

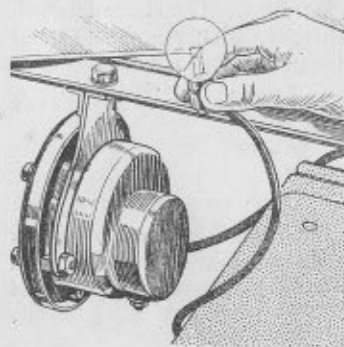
### Fuel Gauge.

The electric fuel gauge is automatic and registers the contents of the fuel tank. It is active only when the ignition is switched on. Consequently when the tank is being replenished, first switch off the ignition to stop the engine, then switch on again and the needle on the dial will record the amount of spirit which is poured into the tank.

The gauge is very unlikely to fail, but in this eventuality, Messrs. S. Smith and Sons (M.A.), Cricklewood Works, London, N.W.2. (the makers) or their depots will give prompt service.

### Electric Horn.

The horns, before being passed out of the works, are adjusted to give their best performance and will give a long period of service without any attention. No subsequent adjustment is required.



Test the horn lead with a bulb to ascertain if the wiring is faulty.

If the horn becomes uncertain in its action, giving only a choking sound, or does not vibrate, it does not follow that the horn has broken down. First ascertain that the trouble is not due to some outside source, e.g., a discharged battery, a loose connection or short circuit in the wiring of the horn, or a blown fuse.

It is also possible that the performance of a horn may be upset by the horn becoming loose on its mounting.

This can be ascertained by removing the horn from its mounting, holding it in the hand and pressing the push. If the note is still unsatisfactory, do not attempt to dismantle the horn, but return it to the makers.

### Electric Windscreen Wiper.

To start, pull out the curved handle and swing it aside so as to move the cleaning arm into position on the screen. Then move the control switch to the left. To stop the wiper, move the switch to the right. Then pull out the curved handle to disengage the wiper from the gears, and turn it into the top of the switch knob. This locks the arm out of the line of vision of the driver and also ensures that the wiper is switched off.

The wiper requires no attention; all moving parts are packed with grease during assembly and no lubrication is required.

When cleaning the windscreen, the wiper arm can be easily lifted from the screen, but care must be taken that it is not forced from side to side.

## THE LAMPS

### Dip and Switch Mechanism and How to Replace Fuses

THE head lamps are provided with an electrically operated anti-dazzle device for operation by the foot switch. When the switch is moved to the "dip" position, the near-side headlamp beam is dipped and turned to the nearside of the road, while at the same time, the offside headlamp is switched off, thus causing no discomfort to drivers of approaching traffic.

The dipping of the head-lamp beam is effected by a movement of the reflector. This is made in two parts: the centre portion is pivotted in a fixed rim which is in turn secured to the body. Movement of the reflector is controlled by means of a solenoid and plunger which, when the current is switched on, tilts the reflector to give the dipped beam.

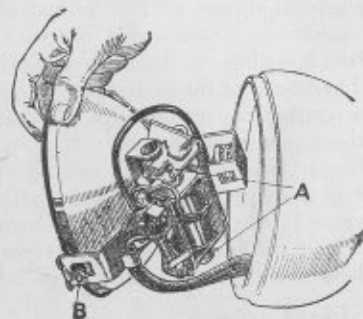
To remove the lamp front, slacken the fixing screw at the bottom of the lamp and swing it aside from the slot. The front can then be withdrawn. When replacing, press the front on to the lamp body, locating the top of the rim first. Finally swing the screw into the slot and tighten it to lock the front into position.

To remove the nearside reflector, withdraw the fixing screw at the back of the lamp. The reflector can then be withdrawn by dislocating the tongues of the two fixing brackets rivetted to the reflector rim from the slots in the lamp body. The offside reflector can be removed by turning back the ends of the cork washer and removing the two screws at the top of the lamp.

To replace a bulb in this lamp, it is first necessary to remove the bulb holder from the rear of the reflector by springing back the two securing spring clips.

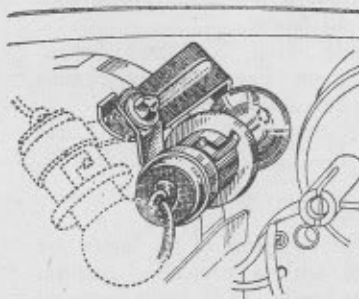
To obtain the best results from the lamps it is essential that they are in good alignment and that the bulbs are focussed correctly.

Alternative positions are provided for the head lamp bulb in its holder. Each position to be tried for the best projection of light.



Dipping Headlamp Reflector.

By easing the solenoid plunger A, or oiling the pivots B, of the dipping reflector, fuse troubles can be overcome.



How the instrument Lamp swivels for bulb replacement.

To align the lamps, slacken the single fixing nut, then move the lamp on its adjustable mounting to the desired position, finally locking the adjustment by tightening the nut.

If the lamps go dim for no apparent reason and the batteries are fully charged, tighten the mounting nuts to ensure a good "earth."

## The Fuse.

A fuse is provided with the electrical dipper unit to protect the equipment in the event of the reflector failing to function properly. The fuse is of the cartridge type, and is carried in spring clips alongside the dipping mechanism. If the reflector fails to function, remove the fuse from its holder and see whether there is a break in the fuse wire. A spare fuse is clipped to the reflector bracket.

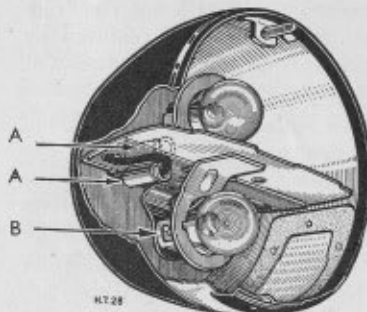
If the fuse should blow repeatedly, and the cause cannot be found, have the reflector examined at the nearest Service Depot.

## Side Lamps.

The lamp front can be removed when the screw at the top of the lamp is slackened.

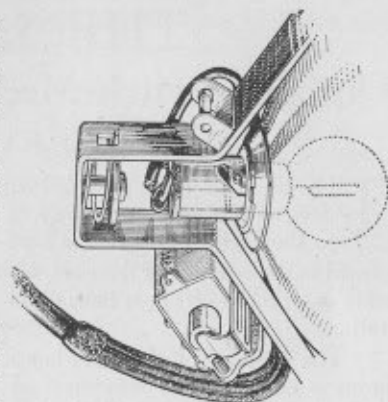
## Stop-Tail Lamp.

The front of the combined stop and tail lamp can be removed for bulb replacement when the fixing screw is slackened sufficiently. On some models there are two fixing screws.



Combined stop and rear lamp.

- A. Cable Sockets.
- B. Bulb Contact.



Headlamp Focussing.

The bulb has three focussing positions on the bayonet holder.

## Bulb Sizes.

The sizes of bulbs used are:—

Head, Lucas No. 74, 6-volt, 18 watts.

Side, Stop, Tail and Instrument Panel Lamps, Lucas No. 200, 6-volt, 3 watts.

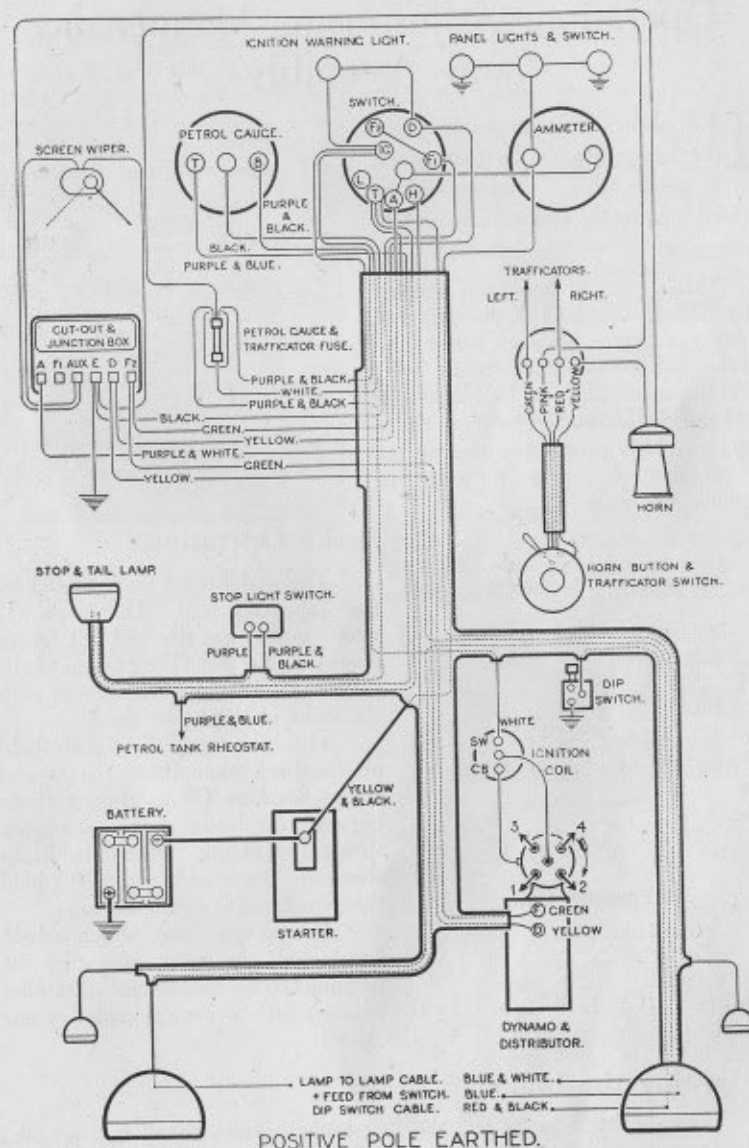
Ignition Warning Lamp, Lucas No. C252A, 2.5-volt, 5 watt.

## Reflectors.

The reflectors of the lamps are covered with a protective coating, and any marks can be easily removed by means of a soft cloth.

On no account use metal polish.

# Wiring Diagram Austin "Seven"

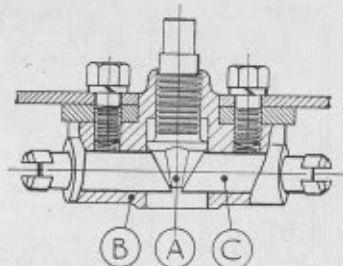


# CARE OF THE BRAKES

## Operation, Adjustment, Maintenance and Assembly.

It is of the utmost importance that the brakes should be maintained in good order. They should be tested frequently and adjusted when necessary.

After the car has been washed (particularly with a high pressure hose), or driven through water, the brake linings are likely to be wet. Wet brakes are likely to be ineffective and are dangerous. Therefore drive very carefully and apply the brakes a number of times in order to remove the water.



Brake Adjuster Unit, front and rear.

A—Cone. B—Housing.  
C—Plunger.

### Brake Operation.

The rear brakes are actuated by the expander unit. The cone (1) when pulled by the rod (2) forces apart the plungers (3) by means of the rollers (4). The plungers engage with the webs of the brake shoes.

The housing (5) is lightly held on the back plate (6) by nuts and spring washers (7) so that it floats between the brake shoes, which are thus self-centring. When the brake shoes are removed the pins (8) hold the plungers (3) in the housing.

The adjuster unit, which is held firmly on the back plate by its housing (B) has two somewhat similar

plungers (C) held apart by the adjuster (A), a conical ended screw which provides adjustment to the shoes.

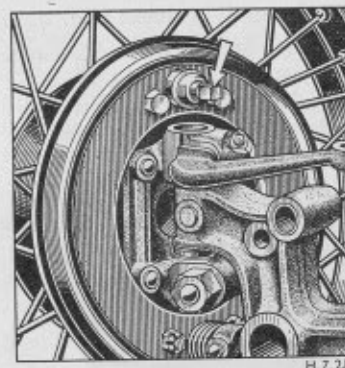
### Adjusting the brakes.

Both the hand brake and the foot brake operate on all four wheels. They require adjusting when the hand lever can be pulled nearly back to the full travel on the rack, and when the pedal can be pushed nearly to the floor-board.

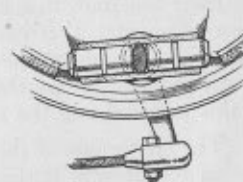
The car should never be taken out when in this condition, but should be attended to at once.

Individual adjustment is made at each wheel to take up wear on the brake linings. On no account may cables and linkages be altered.

On each brake back plate is the square head of the brake adjuster. With a spanner, turn the adjuster clockwise as far as it will go. The brake shoes are then on, and the adjuster should be turned back three full notches to give the shoes the necessary clearance from the drum. Each quarter of a turn can be felt and heard when the flat sides of the cone on the inner end of the adjuster engage with the plungers supporting the shoes.



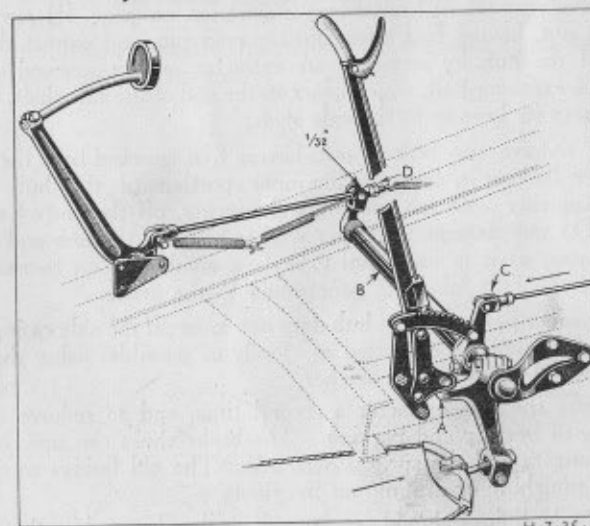
The arrow indicates the brake adjuster.



Cam Operated Front Brake.

When any adjustment is being made all four brakes should be checked. Do not attempt to make adjustment with the handbrake on.

### Brake Assembly.



The Brake Controls.

A—Handbrake operating lever. B—Brake cross shaft. C—Rear brake connection.  
D—Foot brake connection.



In the event of the brake cross shaft assembly or rear brake rods being dismantled, before re-assembly the shoes on each brake should be adjusted, as already described. Then connect the cross rods on the rear axle to the brake balance lever.

The handbrake lever should be placed fully "off" and the brake cross shaft turned until the projecting pad on it is against the handbrake roller. With the cross shaft in this position the rear brake pull rods should be adjusted by screwing on or off one or both of the fork ends, as required.

The front brake cable should be adjusted until it is almost taut.

Next ascertain that the brake pedal has about a quarter of an inch free movement. If it has more, or less, adjustment should be made by slackening the nuts on the brake pedal pull rod (by the side member of the chassis frame). There should be  $\frac{1}{32}$  in. clearance between the inner nut on this pull rod and the cross shaft trunnion pin.

The centre one of the three springs is to hold the brake rods in light tension and prevent rattle.

It is strongly advised that the brake operating mechanism be adjusted only by authorised Austin Dealers.

### Re-lining the Brakes.

To re-line the rear brakes it is necessary to remove the wheel and then the brake drum by unscrewing the three screwdriver screws which secure it to the hub; and, before the shoes can be removed for re-lining the hub and wheel bearing must be extracted.

For this a special hub extractor is available.

For the rear wheel brakes (see illustration on page 41) remove the axle shaft nut, having first taken out the split pin, and extract the outer portion of the hub by screwing an extractor on the screwed end and turning the extractor bolt, which bears on the end of the axle shaft. Remove the key from its keyway in the axle shaft.

Next remove the bearing nut, having first knocked back the tang of the washer locking it, and prise the inner portion of the hub or felt housing, together with felt packing and bearing, off the end of the axle casing. Do not damage the paper washer between the hub and the felt housing faces, as it is important to make a good joint on re-assembling to prevent the hub lubricant penetrating to the brake.

If the inner portion of the hub does not come off the axle casing easily, the outer half should be refitted as closely as possible, using the wheel nuts to draw the two halves together.

Then use the hub extractor a second time, and so remove the hub together with bearing and packing. The brake shoes can now be lifted off the plungers and the springs detached. The old linings can be detached by punching or drilling out the rivets.

The brake linings should be clamped to the shoes while the riveting is in progress, as it is essential that they should bed down on the shoes over their whole area. When the linings have been rivetted in position, bevel off at each end for about  $\frac{1}{4}$  inch with a coarse file.

### Reassembling.

To reassemble, replace the shoes, with their springs, in position on the plungers. Replace the inner portion of the hub or felt housing with the bearing and packing on the axle casing end and push up home by tightening the bearing nut, which must be locked by the locking washer in the same way as before dismantling. Replace the paper joint washer on the felt housing face, insert the key in the shaft, push the hub over the axle shaft, on the key, and draw it up to the felt housing by the wheel nuts on their studs.

When the joint faces of the hub and the felt housing are together, replace the axle nut and tighten securely up to the hub boss. *Remember to insert the split pin through the nut.* Then remove the wheel nuts from the hub, fit the brake drum, and insert and tighten the three screwdriver screws.

### Front Brakes.

For the front brakes, the operation is somewhat different. Having removed the wheel, the hub cap and the axle nut, screw on the extractor and draw off the hub complete with brake drum. The brake shoes are then clear for removal.

On reassembling remember to fit a new split pin through the axle and nut. There is a hole in the end of the hub through which the pin can be inserted.

It is always necessary to re-line all four brake shoes on the one axle at the same time, and before or after the re-lining it may be necessary to slack off the brake adjustment before the brake drum can be removed or replaced.

After re-lining the brakes, make sure that the hubs contain sufficient lubricant, and re-adjust the brakes.

# RUNNING ADJUSTMENTS

## Decarbonising; Valve Grinding; Tappet Adjustment

THE adjustments set out below are all that the owner will find it necessary to make to keep the car in good running order.

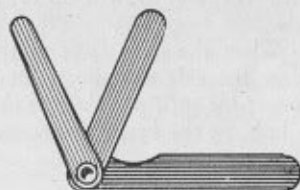
Unless the work is thoroughly understood, however, it is strongly recommended that the car be taken to an Austin Dealer.

### Valve Tappet Adjustment.

To ensure that the full power of the engine is obtained and to maintain silence in the valve operation, it is essential to keep the tappets correctly adjusted. To make this adjustment, remove the valve cover, and have the engine turned slowly round with the hand starting crank.

While each valve is closed there should be between the valve stem A (illustrated) and tappet screw B a clearance equal to the thickness of the thin blade of the "tappet clearance gauge," (.004 in.) with the engine hot. If the clearance is other than this, it can be adjusted by loosening the locknut C and raising or lowering screw B, being careful to tighten up the lock-nut when the adjustment is completed.

A special spanner is provided in the tool kit for this operation. Check this adjustment when the engine is hot.

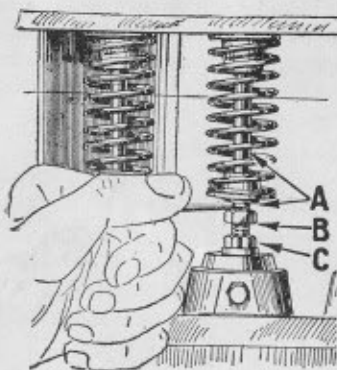


Tappet Clearance Gauge.

### Decarbonising.

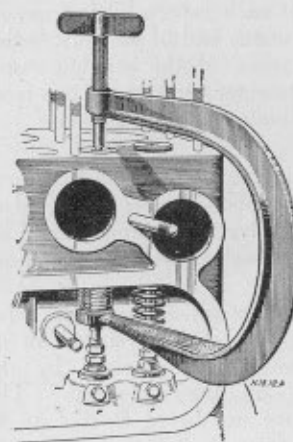
To secure the maximum efficiency from the engine it is necessary to remove the carbon deposit that will have formed on the surfaces of the combustion chamber. This should be done after the first 2,000 to 3,000 miles running and then every 5,000 to 6,000 miles, as necessary, according to conditions. At the same time the work of grinding-in the valves should be undertaken as the valves have a tendency to bed down.

When working at the partly dismantled engine a spanner or perhaps part of the engine may be



Tappet Adjustment.

A—Valve Stem. B—Tappet Screw. C—Locknut



Using a Valve Lifter.

dropped on a "live" wire or terminal, thus causing a short and possible damage. Therefore disconnect the battery cable at the battery for safety.

First drain the water through the tap under the radiator. Detach the top water tube from the head. Disconnect the high tension wires from the sparking plugs. Remove the nuts holding down the head. Then take hold of the head at each end and lift it off.

This should be fairly easy to do, without damaging the joint washer or gasket, which, in the ordinary course, may be in a condition to be used again.

If it is damaged or otherwise not in good condition the gasket should be replaced by a new one.

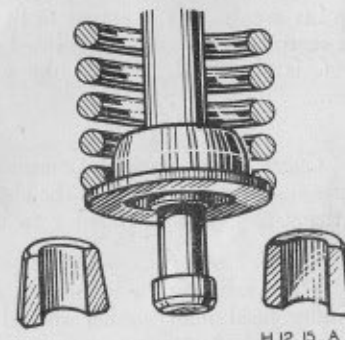
### Removing the Carbon.

When the head has been removed the valves and tops of pistons will be exposed to view. All dirt or deposit should be removed by carefully scraping with a sharp tool.

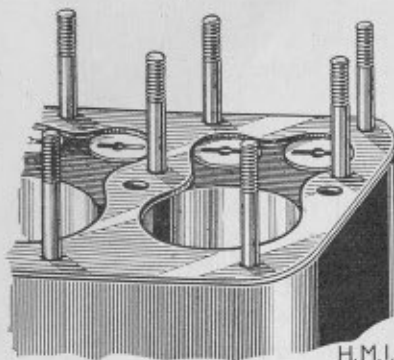
Before grinding-in valves it will be necessary to remove the inlet and exhaust manifold and the carburetter.

Then disconnect the carburetter control, and the air strangler wire. The valve cover with its washer, can be removed by undoing the two milled nuts.

Each valve spring must be lifted by means of a special tool to allow the split cotters to be removed. Then remove the spring. The valve is now free to be rotated on its seat when the tappet screw has been lowered clear of the stem. After the valve is cleaned a little grinding compound should be smeared evenly on its face and the valve rotated backwards and forwards by means of a screwdriver, advancing it a step at short intervals until the pitting is removed.



Split-Type Cotter.



Replace the Gasket beaded edges downwards.

Lift each valve a little from its seating at the end of each step—this allows some of the grinding compound to enter between the two faces and facilitates the cutting action.

Care should be taken that none of the compound enters the cylinders and the valve and seating should be wiped quite clean after the operation.

It is essential for each valve to be ground-in and refitted on its own seating, as indicated by the number on the valvehead. The valves are numbered from 1 to 8, starting from the front.

It is also desirable to clean the valve guides. This operation can be done by dipping the valve stem in petrol or paraffin and moving it up and down, and round, in the guide until any stiffness is removed. Then the valve should be cleaned, and the stem smeared with graphite grease and re-inserted in the guide, the valve spring and cup being fitted up round it. The valve lifter is then used as before to compress the spring so that the taper cotters can be refitted.

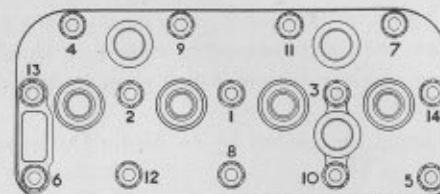
### Valve Cotters.

See that the cotters are placed properly on the valve stem, so that the cup fits evenly. It is easiest to fit the end valves first, and work toward the centre. The cotters are fitted on the valve stem, and then the lifter screw is slackened to allow the valve spring cup to come down over them.

Check the clearance by means of the tappet clearance gauge, and, as a measure of caution, repeat the checking after the car has run 100 miles, as the valves have a tendency to bed down again.

When refitting the manifolds, ensure that the joints are good. The cylinder head joint washer should be replaced with the beaded edges downwards. A little grease smeared over each side will make a good joint and prevent sticking when the head next has to be lifted.

When replacing the head, take care to tighten the nuts evenly. It is advisable to tighten the nuts in the order shown on the sketch. Do not turn them right up at the first operation, but go over them a second time and tighten them securely and fully. This method will ensure that the head has been evenly replaced, and the nuts on the studs uniformly and securely tightened.



Tighten Cylinder head Nuts from the Centre outwards.

Be sure to replace the dynamo leads on their correct terminals.

Do not forget after replacing the head, to refill the radiator with water.

### Lifting the Cylinder Block.

For access to the pistons (except the piston crowns), and the connecting rods, or for fitting a new tappet plunger or guide, it is necessary to lift the cylinder block. The three nuts on the distributor side are easily removed, also the three barrel nuts on the valve side can be removed without difficulty when the valve cover has been taken off. For access to the nut at the front of the cylinder block the dynamo and casing, with the fan bracket and fan, must be lifted clear. First detach the ignition leads and the lead from the coil from their sockets in the distributor cover.

Disconnect the dynamo, and remove the fan belt. The dynamo casing is secured by three set screws and a nut. With the casing removed, the front cylinder block nut is accessible. For access to the rear nut of the block, remove the inspection cover of the clutch pit from the toe plate. Then remove the flywheel housing cover, which is secured by two set-screws to the flywheel housing. Next remove the lower hose connection and the cylinder block can be lifted.

When refitting the block it is necessary to use sleeves on the pistons to compress the rings. These piston ring sleeves are among the extra tools obtainable from the Service Department of the Austin Motor Co., Ltd.

It will be necessary to retime the ignition after re-assembling. (See page 31).

### Fan Adjustment.

Release the clamping pin nut on the fan bracket and then turn the spindle, which is in the form of a crank, until the necessary tension is obtained in the fan belt.



# THE STEERING

## Adjustments of the Track Rod and Steering Box

**A**LTHOUGH adjustments to the steering mechanism are not difficult, considerable experience is necessary before they should be undertaken and we strongly recommend that such work should be done only by Austin Dealers.

The steering should be checked by an Austin Dealer once or twice a year.

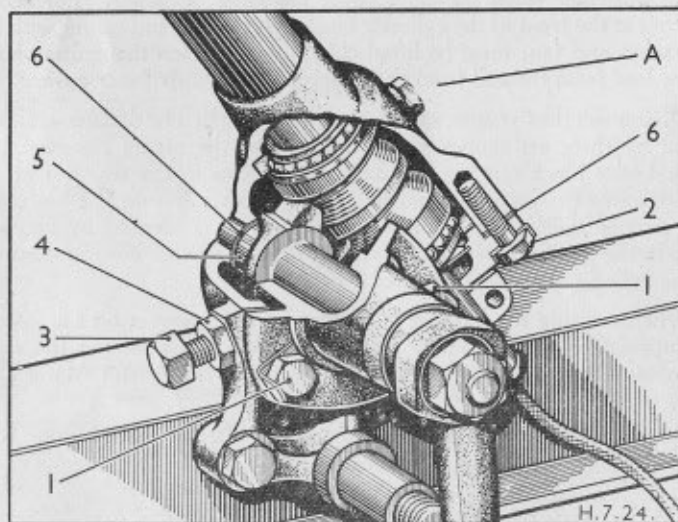
### The Steering Box.

The steering box of the Austin "Seven" is of the "hour-glass" worm and sector type.

Facilities are provided to adjust end play at the worm, end play in the steering cross shaft, and also the mesh of the worm and sector.

To take up end play at the worm, remove the end cover by taking out screws (2). With a knife blade separate and remove one or more of the thin shims. Replace the end cover and test for end play, removing further shims if necessary.

To take up end play at the steering cross shaft, remove the shaft and add one or more shims, as required.



Austin "Seven" Steering Box.

1, 3 and 4, Mesh Adjustments. 2, End Cover Bolts. 5, Thrust Button. 6, Shims.  
A—Oil Plug.

To adjust the mesh of the worm and sector, slightly loosen the three nuts (1) and the lock-nut (4) and turn screw (3) clockwise to take up slack. Tighten the screws and lock-nut and test for mesh. This adjustment should be carried out with the road wheels in the straight ahead position. On this type of steering there is the minimum back-lash in the straight-ahead position, the back-lash increasing towards the full lock.

Before dismantling the steering it is important to disconnect the control wires and loosen the clip at the bottom of the steering column. A special guide is necessary for re-assembly.

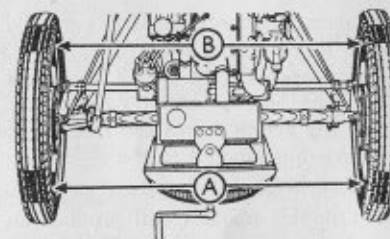
These adjustments should be made by an Austin Dealer.

### Tracking Adjustment.

One of the causes of premature tyre wear is the front wheels being out of track.

The wheels, if they are correctly tracking, should not be parallel, but should be  $\frac{1}{8}$  in. closer between the rims in front of the axle than they are behind. This difference, or "toe-in" as it is called, allows for working clearances of the steering connections and any slight spring of the parts, so that when the car is running the wheels are as near parallel as possible.

If this difference is greater or smaller than  $\frac{1}{8}$  in. the tracking should be adjusted. This is not difficult to effect. It is necessary to remove the cross tube lever, on the near side, from the swivel axle.



Front wheels should "toe-in." A is  $\frac{1}{8}$  in. shorter than B.

It is secured by a nut on the front of the swivel axle, under which there is a spring washer. With this done, the steering cross tube is freed at the near side for the adjustment. On the clamping bolt of the steering arm jaw being slackened, the jaw can be screwed further on, or off, the cross tube, for so many complete turns as may be necessary. This movement will enable the correct adjustment to be attained. Then the clamping bolt is re-tightened. On refitting the cross tube lever to the axle, tighten the nut securely, with the spring washer under it.

This adjustment should be made by an Austin agent who is properly equipped for the work.

# SHOCK ABSORBERS

## Careful Adjustment to Promote Easy Riding

**F**RICITION shock absorbers are fitted and the front shock absorber can be adjusted to promote easy riding.

The front shock absorber is set to a certain initial tension before it leaves the factory, and no change in this adjustment should be necessary for a very considerable time.

Re-adjustment may only become necessary after several thousand miles of car travel, and should be made only when the spring movement seems too free. It should be noted that, normally, the full benefit of the shock absorbers will not be felt when the car is travelling at low speeds, as under these conditions the spring movement is very limited, but, as the speed increases their effect becomes more pronounced, especially over bad roads when the spring action is most severe. Testing should, therefore, be carried out at comparatively high average touring speeds and adjustment made to suit these conditions.

The frictional resistance required to effectively control the action of the springs is comparatively small, and care should be taken not to alter the pressure, when adjusting, more than is absolutely necessary in order to obtain the desired results.

When adjustment does become necessary, carefully note the riding qualities of the car, and if the spring action seems too retarded or stiff, reduce the frictional resistance of the shock absorbers by turning the centre adjusting nut to the left, or counter-clockwise, after slackening the lock-nut. If the spring action seems too free, increase the frictional resistance by turning the adjusting nut to the right, or clockwise. After adjusting, tighten the lock-nut.

Careful adjustment in this manner will produce an ideal condition. The springs will have the required amount of flexibility for easy riding, but spring vibration will be reduced to a minimum and violent rebound effectively eliminated.

The rear shock absorbers do not require adjustment.

## Cleaning the Shock Absorbers.

Periodically—especially in wet weather when much mud is thrown on to them—the large end of the shock absorbers should be taken apart, by withdrawing the centre bolt, and thoroughly cleansed. The centre pin and washers should then be slightly smeared with grease.

If this precaution is not adopted, the shock absorbers are liable to become tight—when an excessive load is thrown on the pins and bushes at the end of the arms, which will cause rapid wear. In addition, great strain is imposed on the bracket holding the shock absorber to the frame.

# THE CLUTCH

## How to Avoid Misuse and to Adjust the Operating Pedal

**S**OME drivers are inclined to use the clutch instead of changing down to a lower gear, particularly when they are almost at the top of a hill and it is only necessary to change down for a few yards. Foot pressure is applied to the clutch to create a certain amount of slip (see page 12).

This is a bad habit. It highly polishes the frictional surfaces and will eventually be the cause of persistent slip, finally, in addition to burning out the fabric rings, probably also distorting the centre plate and making renewal of this essential.

## Removing Oil.

Sometimes clutch slip is due to oil penetrating to the clutch.

In such circumstances it will probably be necessary to renew the friction rings, but, as a temporary measure to enable the car to be driven, washing out with petrol may be resorted to.

When injecting the petrol have the engine turned so that the plate is properly washed and the petrol and oil are given an opportunity to drain away. Also push the clutch out and let it in by the pedal so that the petrol is given a washing action. Do not replace the inspection plate until the petrol has had sufficient time to evaporate, or be drawn off through a hole in the casing under the flywheel. See that this hole is clear.

After this operation it is advisable to lubricate the clutch operating ring (see page 39) as the lubricant in this member may have been removed by the petrol.

## Clutch Wear Take-up.

After the clutch has been in use for some time the wear of the friction surfaces will give rise to a need for adjustment in order to ensure the continued full engagement of the clutch.

The adjustment should be such as to allow at least  $\frac{3}{8}$  in. free movement of the clutch pedal with one finger. After depressing the pedal to this extent the stronger resistance of the clutch springs will be obvious, so that it is easy to ascertain that the amount of free movement is correct. Lack of this free movement is serious, and does not permit the clutch to engage fully. It is of the utmost importance to maintain this free movement of the clutch pedal, and it should be inspected from time to time. Otherwise damage may be done to the clutch owing to the slipping of the plates.

The adjustment is obtained by **slightly** slackening the clamping screw at the bottom of the clutch pedal lever and depressing the pedal sufficiently to give the required free movement. The clamping screw must now be securely tightened and the adjustment checked.

# CARE OF THE BODYWORK

## The Cabriolet Hood; Touring Cars; Air Cushions

**F**OR the car to look and keep its beauty and smart appearance, the body must be given its share of attention.

The cellulose finish of the car is easily cleaned and polished. In the summer weather when the car is only dusty the dust can be lightly wiped off without water and there is no risk of damaging the finish. When the car is muddy, wash off well with clean running water. Wash the mud off, do not rub it off. Remove any grease or tar splashes with petrol.

Do not use the same sponge and cleaning rags for the chassis and springs and other greasy parts as are used for the coachwork.

### Polishing.

After washing and drying use a good cellulose polish. Such a preparation imparts a brilliant surface and preserves and beautifies the body. On no account should metal polishes be used.

The more the surface of the cellulose finish is rubbed by the polishing cloth the smoother and the more lasting is the lustre imparted.

Wash the chromium plating with soap and warm water. Do not use metal polish on it.

The upholstery should be polished occasionally with a little saddle soap of good quality.

Remove grease spots with a rag dipped in petrol and do not allow grease or oil to remain on rubber parts such as mats and running board covers.

Door locks, hinges and other small working parts should be given a drop of oil occasionally. Door rattles can be cured by adjusting or renewing the rubber stops and striking plates. Occasionally tighten hinge screws and the bolts holding the body to the chassis.

Sliding seat runners should be greased occasionally but not the runners of the sliding roof. When closed the sliding roof must fit tight; otherwise wind whistle may occur.

### Storage of the Car.

If the car is to be laid up for a long period the fuel, oil and water should be drained off, and the batteries removed. The weight of the car should not be allowed to remain on the tyres, but both axles should be jacked and supported on blocks.

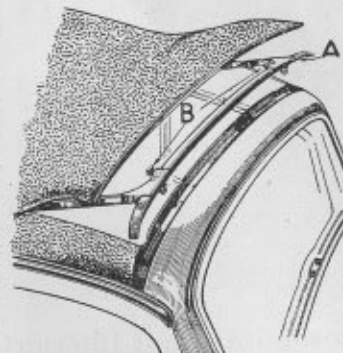
Before storage, the car should be thoroughly cleaned and dried, and it should be left with dust sheets over it.

Have the batteries charged fortnightly.

## The Cabriolet Roof.

The Cabriolet hood is easily operated, but care must be taken not to damage the fabric and not to roll it up while wet. Always leave the hood up to dry after rain or after the car has been washed.

To open the hood, first unfasten the two clips over the windscreen. Then lift the hinged stretcher arm holding the hood to the canopy rail and separate the leading edge of the hood from the arm.



Cabriolet Hood.

A—Stretcher Arm. B—Fastenings.

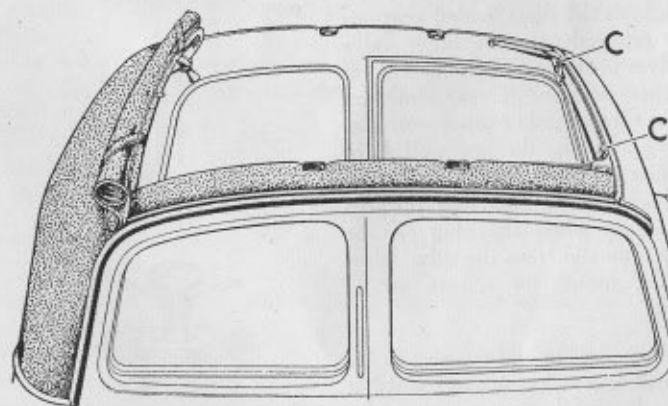
The hood is now free to be pulled over to the back of the car. Standing behind the car, roll up the hood and secure it by two straps, one on either side, which turn outward over the roll and fasten on the outside.

Alternatively the hood may be rolled from the front (i.e., inside out).

The hood may be left in this position if desired.

To fully lower the hood, unfasten the two clips, one over each quarter window, and lower carefully.

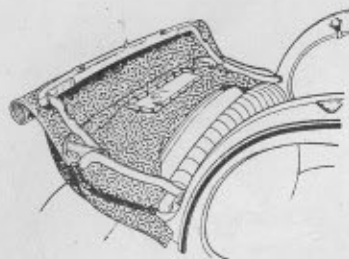
When erecting the hood, take care to see that the edges are in the channelling on either side of the car before fastening either the rear or the forward clips.



The Cabriolet Hood Rolled Open.

C—The Front Fasteners.





Cabriolet Hood Lowered.

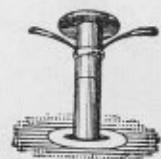
### Float-on-Air Seat Interiors.

The essence of comfort with "Moseley Float on Air" upholstery is low pressure—to blow up the cushions at all hard is to destroy their powers of absorbing vibration. The seat should be quite soft to the touch, the hand pressed on the surface sinking well in.

If the seats do not give perfect results release air from the valve, as the usual fault is over inflation. The butt ended portion running round the sides and front of each interior is separately inflated and should be moderately well blown up. The centre portion of each interior is also separately inflated, and the pressure should be such that the base of the seat can be felt when pressed with the closed fist. This gives the ideal pressure and support when sat upon.

To adjust the air pressure open the flap at the rear of the cushions exposing the valves. The valve at the side inflates the butt ended portions above referred to; the other valve (or valves in the rear cushion) inflates the centre section. Draw gently on the tabs till the rubber valve protrudes about one inch, do not pull hard otherwise the valve may be damaged. Roll back the rubber ring towards the cushion when the plug can be readily removed from the tube. Blow with the mouth or release air as required.

Moisten plug and reinsert as far as it will go, roll ring back until it engages in the depression caused by slot in plug. Push back the valve till the cap is flush with the surface and refasten the flap.



The Air Cushion Valve.

### Touring Car Hood.

In order to lower the hood of the Tourer, disconnect the four press-studs on either side, holding the hood to the side-screens, and unfasten the two knobs at the top of the wind-screen.

Standing at the right of the car, lift the hood with the right hand and break the frame at the centre with the left hand. Fold right back on to the rubber stops and pull out the hood material to hang in one fold. Turn the valances under the hood sticks. Secure the hood frame by means of the two leather straps on the side of the body, roll up the hood and tuck in the ends.

The cover should be pulled on evenly, with the two fasteners uppermost. Connect the straps on the back rail of the body to the fasteners on the cover. The straps at the end of the cover are to secure the cover to the hood frame.

Before raising the hood, undo all the straps and pull out the hood material. Lift the front rail upwards and forwards and straighten the frame. Secure the fasteners at the windscreen and fasten the press studs.

### Side Screens.

There are two leather loops on the side of the body towards the rear to hold the pegs of the side-screens if folded back in half. Release the front peg and lift the front half of the screen to turn it.

The rear half of front screens may be folded forward and secured by a fastener.

The side-screens can be carried in the front doors. To remove them from the body slacken the setscrews with a coin or a screwdriver and lift them.

Unbutton the flaps in the doors and insert the pegs of the screens into the holes in the bottom door rail. Two screens go into each door, with the hanging cloth and felt between them to prevent rattles.

### Door Keys.

Door locks fitted by the Austin Motor Company are made by various manufacturers, to whom direct application should be made for replacement keys.

On every lock are code letters and a number. These should be quoted when a new key is required. The numbers, and in some cases the letters, are also stamped on the keys.

The letters and the manufacturers are as follow :—  
H&TV, or LL—The Yale & Towne Manufacturing Co., Standard Works, Willenhall, Staffs.  
ZENI—The Walsall Lock and Cart Gear Co., Ltd., Neale St., Walsall, Staffs.  
ELMO, or E (with a number from 4892 to 5091)—M. Mole and Son, Ltd., Charlotte St., Birmingham, 3.  
MRN, MRA, or NAX—Wilmot Breeden Ltd., Eastern Works, Camden St., Birmingham.



## AFTER SALES SERVICE

**A**USTIN DEALERS are under agreement to give "After Sales Service." During the period of the first thousand miles running of Austin cars purchased from them they will without charge:—

- Adjust brakes.
  - Oil and grease all points of the car.
  - Check and correct carburetter mixture and reset slow running adjustment.
  - Check and correct ignition timing and tappet clearances.
  - Drain crankcase at 500 miles and the gearbox and back axle at 1,000 miles and refill.
  - Tighten cylinder head nuts.
  - Check front wheel alignment.
  - Examine battery and bring up to proper level with distilled water or diluted acid as may be required.
  - Examine all wires and terminals.
  - Tighten all nuts and bolts on the body, steering, springs, etc.
  - Adjust clutch and brake pedals.
  - Adjust fan belt.
  - Test the tyres for correct pressure.
  - Clean dynamo commutator.
- All materials will be charged for.

## TOOLS AND ACCESSORIES

- |  |   |
|--|---|
| Double End Open Spanners :<br>$\frac{3}{16} \times \frac{1}{4}$ ; $\frac{1}{8} \times \frac{3}{8}$ ; $\frac{7}{16} \times \frac{1}{2}$ . | Envelope containing Austin Literature.            |
| Box Spanner : $\frac{1}{8} \times \frac{1}{4}$ ; and tommy bar.  | Lifting Jack.                                     |
| Adjustable Spanner.  | (Jack handle is carried under rear seat cushion). |
| Spanner for tappet screw.  | Tyre Lever.                                       |
| Combination Pliers.  | Tyre Pump.  |
| Sparking Plug and Tappet Clearance Gauge.  | Wheel Brace.                                      |
| Ignition Gauge and Screwdriver.  | Starting Handle (in position on some models).     |
| Ignition Key.  | Grease Gun complete.                              |
| Screwdriver.   |   |

This list is subject to modification from time to time.

## EQUIPMENT

**T**HE AUSTIN MOTOR CO., LTD., accept no liability under the terms of their Warranty for Tyres, Speedometers, or the Electrical Equipment, or other Goods, including Coachwork, not of their own manufacture.

All claims relating to any of these parts or fittings or orders for repairs to them should be addressed to their manufacturers.

For our clients' convenience, we give below the names and addresses of the manufacturers or suppliers of the goods in question. Further information may be obtained on application to them.

**IMPORTANT.**—When claims under guarantee are being made, it is absolutely necessary to quote the type and number of car, and also the commissioning date.

### ELECTRICAL.

- |                |                   |  |
|----------------|-------------------|--|
| (Also Mirrors) | Horns             | } Joseph Lucas, Ltd., Great Hampton Street, Birmingham 18.<br>Dordrecht Road, Acton Vale, London, W.3. and Branches. |
|                | Lamps             |  |
|                | Starters          |  |
|                | Cutouts           |  |
| "LUCAS" ..     | Batteries         |  |
| "CAV."         | Dynamos           |  |
|                | Trafficators      |  |
|                | Switchboards      |  |
|                | Windscreen wipers |  |

### INSTRUMENTS.

- |            |               |   |
|------------|---------------|---|
| "SMITH" .. | Speedometers  | S. Smith and Sons (M.A.), Ltd., Cricklewood Works, London, N.W.2. |
|            | Petrol Gauges |   |
|            | Oil Gauges.   |   |

### LIFTING JACKS

- |         |  |
|---------|--|
| .. .. . | R. T. Shelley, Aston Brook St., Birmingham |
|---------|--|

### TYRES AND TUBES.

- |                  |  |
|------------------|--|
| "DUNLOP" .. .. . | Dunlop Rubber Co., Ltd., Fort Dunlop Birmingham. |
|                  | 1, Albany St., N.W.1.                            |
|                  | 24-28, Gillingham St., S.W.1                     |

### CARBURETTERS.

- |                  |   |
|------------------|---|
| "ZENITH" .. .. . | Zenith Carburetter Co., Ltd., Honeypot Lane, Stanmore, Middlesex. |
|------------------|---|

### PETROL PUMP AND AIR CLEANER

- |   |  |
|---|--|
| "A.C." Sphinx Sparking Plug Co., Ltd., Dunstable, Beds. |  |
| Delco-Remy & Hyatt, Ltd., 111, Grosvenor Road, S.W.1.   |  |

### SPARKING PLUGS.

- |                            |  |
|----------------------------|--|
| "K.L.G." CORUNDITE .. .. . | K.L.G. Sparking Plug Co., Ltd., Putney Vale, S.W.15. |
|----------------------------|--|

### OIL GAUGES("Seven").. .. .

- |         |  |
|---------|--|
| .. .. . | David Harcourt, Ltd., Theodore Street' Birmingham, 19. |
|---------|--|

### DRIVING MIRRORS.

- |                               |   |
|-------------------------------|---|
| Interior and Exterior .. .. . | Desmo, Ltd., 31, Stafford St., Birmingham 4.                                |
| Interior only .. .. .         | Pennant Manufacturing Co., 350, Reddings Lane, Acoccks Green, Birmingham 11 |
| Also .. .. .                  | Joseph Lucas, Ltd. (some models).   |

# LUCAS SERVICE DEPOTS

<b>BELFAST.</b>		<b>Telephone.</b>	<b>Telegrams.</b>
51/55, Upper Library Street, .. ..	25617	Servdep	
<b>BIRMINGHAM, 18.</b>			
Great Hampton Street .. ..	Central 8401	Lucas	
<b>BRIGHTON, 4.</b>			
85, Old Shoreham Road, Hove .. ..	Hove 1146/49	Luserv, Brighton	
<b>BRISTOL.</b>			
345, Bath Road .. ..	76001	Kingly	
<b>CARDIFF.</b>			
54a, Penarth Road .. ..	4603	Lucas	
<b>COVENTRY.</b>			
Priory Street .. ..	3068	Lucas	
<b>DUBLIN.</b>			
Portland Street North, North Circular Road	Dublin 72601	Luserv	
<b>EDINBURGH, 11.</b>			
60, Stevenson Road, Gorgie .. ..	62921	Luserv	
<b>GLASGOW.</b>			
Corner of Grant St. and St. George's Road	Douglas 3075	Lucas	
<b>LEEDS.</b>			
64, Roseville Road .. ..	28591	Luserdep	
<b>LIVERPOOL, 13.</b>			
450-456, Edge Lane .. ..	Old Swan 1408	Luserv	
<b>LONDON.</b>			
Dordrecht Road, Acton Vale, W.3 .. ..	Shepherds Bush 3160, Dynamagna, Ealux, London.		
757-759, High Road, Leyton, E.10 .. ..	Leytonstone 3361	Luserdep, Leystone, London.	
155, Merton Road, Wandsworth, S.W.18..	Putney 5131	Luserv, Put., London	
<b>MANCHESTER.</b>			
Talbot Road, Stretford .. ..	Longford 1101	Lucas, Stretford	
<b>NEWCASTLE-ON-TYNE, 2.</b>			
64-68, St. Mary's Place .. ..	25571	Motolite	

## The AUSTIN MOTOR Co., Ltd., Longbridge, BIRMINGHAM.

(G.P.O. Box 41).

Telephone: Priory 2101      Telegrams: "Speedily, Telex, Northfield."  
Cables: "Speedily, Birmingham, England."      Code: Bentley's.

### LONDON:

479-483, Oxford Street, W.1. (near Marble Arch).

Telephone, Mayfair 7620      Telegrams: "Austinette, Telex, London."

Holland Park Hall, W.11.      Telephone, Park 8001.

25, North Row, Oxford Street, W.1. ("Seven" and "Ten" Repairs).

Telephone, Mayfair 6271.